

FEBRUARY 1961

BUTANE-PROPANE

News



**LPG takes over
a resort**

A CHILTON PUBLICATION

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

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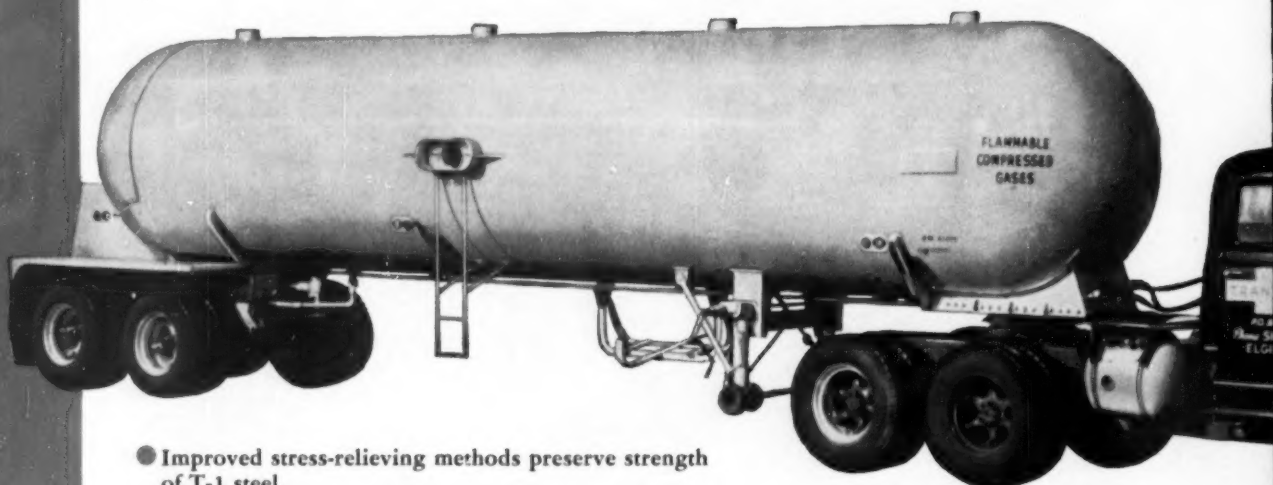
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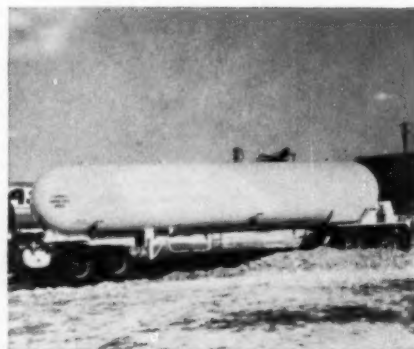
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They increase efficiency
by stopping waste and loss



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With vapor meters you can have an efficient system of inventory control and save money by uncovering gas losses. Also metering will streamline your bookkeeping procedures by putting billings on a systematic pay-as-you-use basis. For complete details write or use the coupon. Rockwell Manufacturing Company, Dept. 78-B, Pittsburgh 8, Pennsylvania. In Canada: Rockwell Manufacturing Company of Canada, Ltd., Box 420, Guelph, Ontario.

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CHEVROLET **IES** "WALKS" WHEELS OVER
FRONT INDEPENDENT SUSPENSION TRUCK-BUSTING BUMPS!

Chevrolet truck wheel action on rough road surface,
as depicted by 4-stage stop-action photography.

CHEVROLET **I F S** FRONT INDEPENDENT SUSPENSION PROTECTS YOUR PROFITS THESE THREE WAYS:

1 *Rides down high maintenance costs.* When a bump looms up, Chevy's independently suspended front wheels "walk" right over it. Most road shocks and jolts never reach the chassis, cab or body. The truck rides *smoothly*, takes less of a beating, stays in cost-saving shape longer. Your income doesn't dribble away in big repair bills. And you don't lose money through excessive downtime, either.

2 *Rides cargoes over rough spots with less damage . . . minimum loss.* Thanks to those same "walking wheels," loads don't do much bouncing in the body of a '61 Chevy truck. That means you don't have to contend with undue cargo damage that eats away at your earnings. (Chevy's load-tailored rear suspension helps protect cargoes, too.) This sure protection for fragile loads—and profits—is standard in 1961 Chevrolet trucks of every weight class.

3 *Rides drivers through with less fatigue—for tighter schedules.* Wait till you see how Chevy front wheel action works to eliminate tiring shimmy and steering-wheel fight. It means that the man at the controls can stay there longer with less fatigue—stay on schedule and do a bigger day's work. (Another reason you can look for faster schedules is that Chevy's bump-beating wheel action allows faster safe speeds on rough roads.)

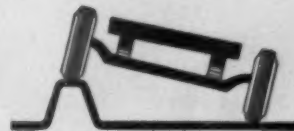
That gives you an idea of how Chevy Independent Front Suspension works to move you ahead in the money-making department. And it's available in 165 Chevrolet models for '61, from new Corvair 95's to 36,000-lb. GVW tandems. Check it out with a demonstration ride at your Chevrolet dealer's, sometime soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

INDEPENDENT FRONT SUSPENSION



In Chevy, each front wheel, suspended independently, is free to step cleanly over bumps (see left). Each works smoothly to reduce objectionable jolts so characteristic with I-beam axle design (right). Working with load-tailored rear suspensions in every weight class, I.F.S. provides the basis for profit-protecting performance that's unmatched by I-beam axle trucks.

I-BEAM AXLE DESIGN



1961 CHEVROLET STURDI-BILT TRUCKS



CHEVROLET

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Out of the fog

JUST THE OTHER DAY, BPN got a new reading on its "fog index." Things, we're happy to relate, are looking up.

Fog index? people ask. What in the world is that, and who cares?

It may come as a surprise to many, but editing has its scientific, or mathematical side, just as engineering does. And what the pressure gauge and thermometer do for the operating engineer, the fog index does for us.

In a word, it's a measure of the readability of writing. The lower the fog index (up to a point), the more readily understandable is the reading matter. And, obviously, the more readily understandable something is, the more value it has.

Amateurs and beginning writers like to write in fancy phrases and weave high-sounding phraseology through their work. The results may be *impressive* but they're seldom *expressive*. If you're going to try to communicate an idea, you should present it as simply and di-

rectly as possible.

It isn't always easy to do this and still write interestingly. Grammar-school children can win all sorts of fog index prizes, but their writing is not necessarily interesting. It's too terse, too choppy, lacks flow and polish. But at least it's understandable to everyone.

The problem is to write interestingly *and* understandably. The top consumer magazines — "Readers Digest," "Time," and "Harpers," and the rest—achieve this, and their fog indexes prove it. Even classic novels have low (meaning good) fog indexes. The popularity of these works proves that even high-domed intellectuals prefer reading what is simple and can be digested quickly.

People in all walks of life can benefit by using the fog index on their own prose. Everyone writes letters, issues written directives, sends memos, makes reports. And everyone should bear in mind at all times that these are written to *express*, not *impress*.

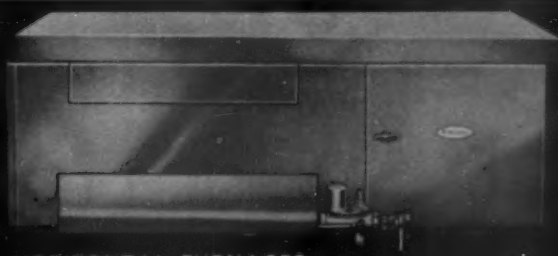
It might be fun to test your



Piggybacking, Russian style? Could be. Or perhaps they deliver new trucks by rail in the Soviet. The man who took the photo, a member of an Association of American Railroads delegation which visited the Soviet Union last summer, doesn't say. In any case, it's a photo of LPG equipment as it looks behind the Iron Curtain, and that fact alone should make it newsworthy.



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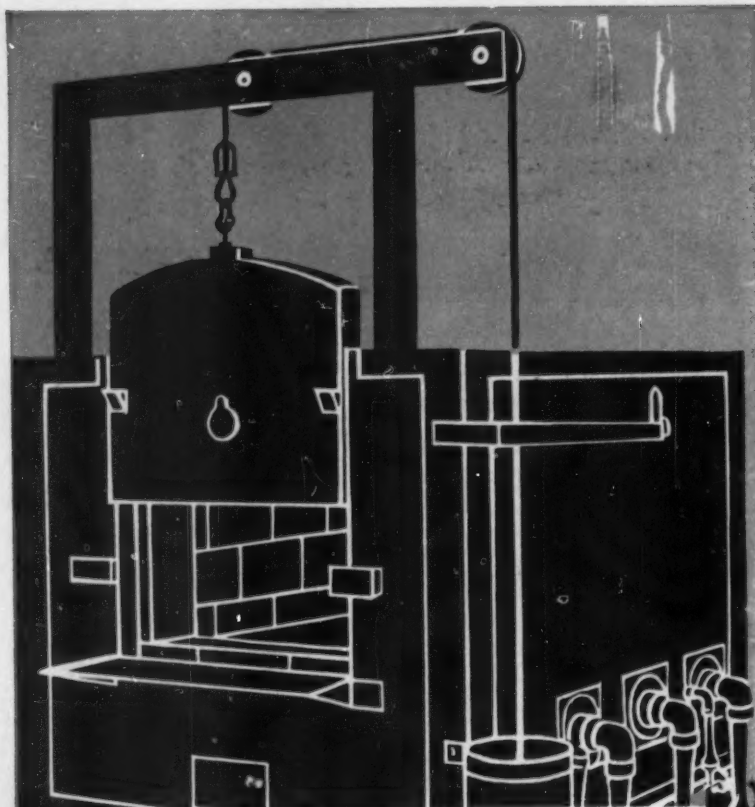
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**MANUFACTURERS OF "BUZZER" EQUIPMENT FOR
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own work. If you'd like to try, here's the formula: Take a sample of at least 100 words. Determine the average number of words per sentence. Treat independent clauses (generally, those set off by semi-colons) as separate sentences.

Next, count the number of polysyllables (words of three syllables or more) per 100 words. Omit from this count capitalized words, combinations of short, easy words like "manpower," and verbs made into three syllables by the addition of "-es" or "-ed."

Then, add the average number of words per sentence to the polysyllable count and multiply the sum by 0.4. Round off the result to the lowest whole number.

How'd you make out? A score of 17 is far too high, 14 is fair, 12 is good, 10 terrific. If you're up at 14 or over, you'd better go to work on your prose. After all, what this old world needs most right now is understanding, and de-fogging is the first step in making yourself understood.

BACK TALK

Excerpts bring request

Toledo, Ohio

I have been given excerpts from articles captioned "Financing An LPG Business," appearing in the February, March, and April 1960 issues of BUTANE-PROPANE News.

I would like to have six copies of reprints of these articles but if these are not obtainable, I wonder if you might be willing to forward six copies of the magazines.

R. C. WARD
REGIONAL CREDIT MANAGER
Sun Oil Co.

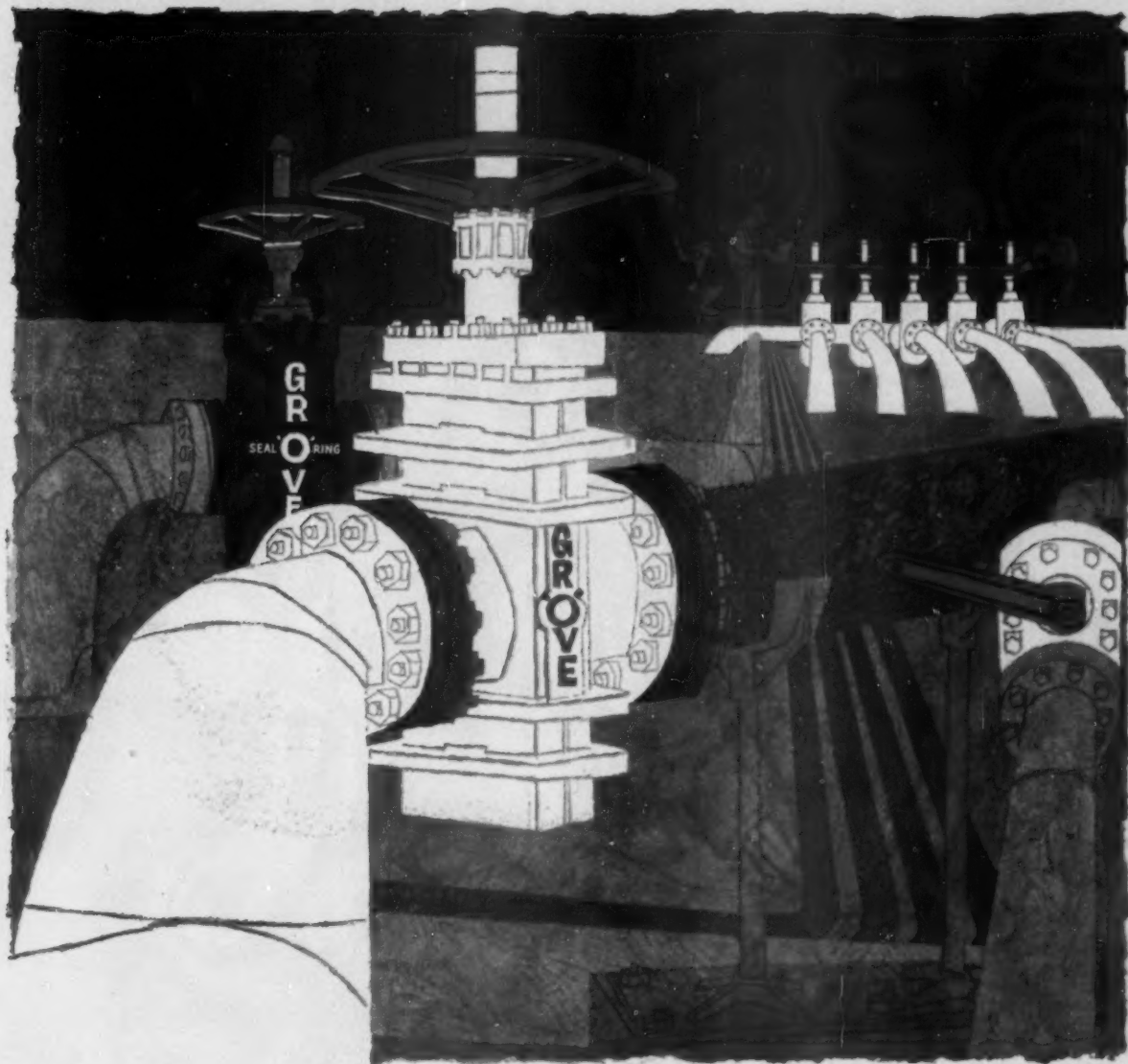
Bookkeeping article

Florence, Ky.

In your August 1960 issue of BUTANE-PROPANE News, the article by E. R. Bollinger Jr., "What is the average dealer's financial picture?" is a very interesting one.

I would like three copies forwarded to this office if at all possible for distribution to my LPG accounts.

RAY COOK
Bookkeeping—Tax Service



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Whatever the service, there's a proven Seal-"O"-Ring® Grove valve ready for duty. G-3, G-4, and new G-5 series Grove gate valves are available in sizes and working pressures to suit your needs. And Grove valves never need lubrication! For complete details on any Grove pipeline valve, write for Catalog 541.

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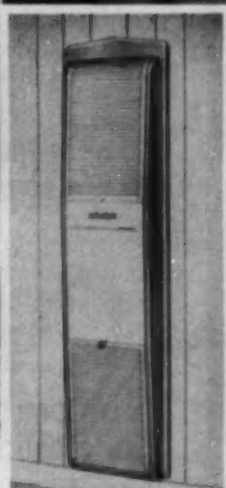


It's the best forced-air heating—Suburban Counter-Flo Heaters have superior engineering, are scientifically designed to draw cold air through the top and force warm air out at the floor level.

It's the best looking heater on the market—looks good in any room. It's a trouble-free performer—automatically controlled. And it's a guaranteed performer—every Suburban Counter-Flo Wall Heater is guaranteed for 20 years.

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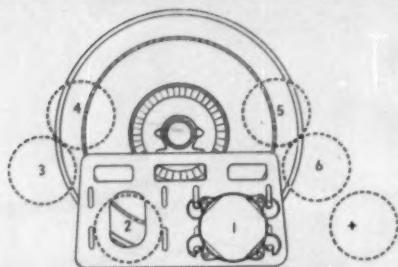
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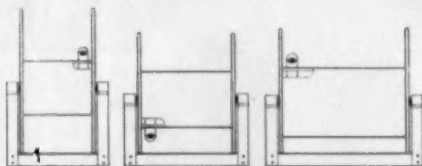
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MANY DEALERS USE SEPARATE REELS FOR PRODUCT AND VAPOR HOSE LINES

The use of separate reels to handle product and vapor return lines is especially practical when extreme hose length makes dual hose handling difficult, or when the vapor line is not used for every delivery. For vapor hose lengths of 100 feet or less, reels with spring rewind motors prove efficient and economical. Longer hose requires the power provided by explosion-proof electric or hydraulic rewind motors.

Ask your Truck Builder or LP-Gas Equipment Dealer for the pocket-size guide to "Efficient Hose Handling for LP-Gas Delivery," or send your request directly to Hannay.

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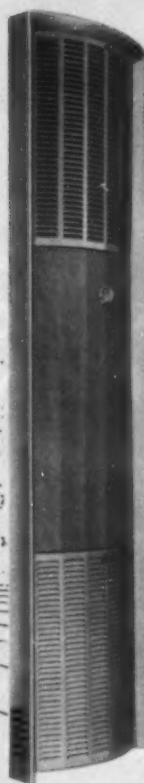
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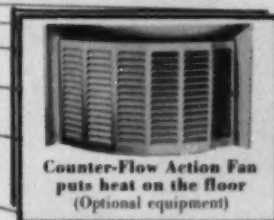
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TEMCO, Inc., Dept. BP, Nashville 9, Tenn.

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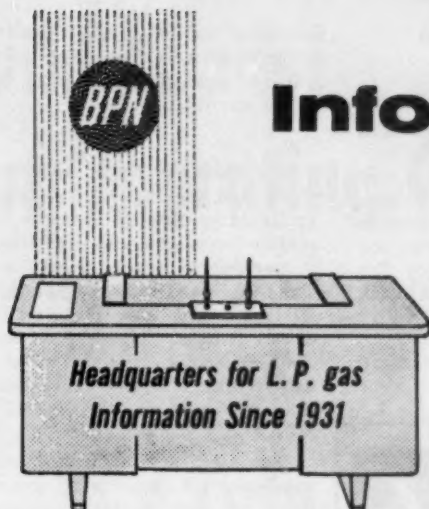
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Information Desk

Brief refresher on thermal value of fuels ... Can you deodorize LPG? ... Where to get orifice charts ... How to check for combustible mixtures.

LPGA's "average value" table is handy reference

Indiana

We have received the following letter from one of our patrons, and we wondered if you could advise us how to answer it correctly:

"Please describe butane and propane gas, pressure and pounds per gallon of propane gas in a domestic container, cubic feet per pound of gas at atmospheric pressure, Btu in a pound of gas in a domestic container, Btu in a kilowatt of electricity at 110 and 220 vts, and Btu in a cubic foot of city gas."

M. J. W.

Butane and propane (collectively known as liquefied petroleum gases or L. P. gas) are hydrocarbon gases. Their chemical symbols are C_4H_{10} for butane and C_3H_8 for propane. At normal atmospheric pressure and temperature they are in the gaseous state but by subjecting them to moderate pressure, they can be converted to the liquid phase at normal atmospheric temperatures. They are then transferred and stored in this highly condensed form where 1 cu ft (7.48 gal) of the liquid has a heating value equivalent to about 700 cu ft of natural gas. It is converted back to the vapor phase as it is used.

It is used like natural or city gas in cooking, heating, and other commercial and industrial heating jobs. The appliances for each fuel are the same, although minor modifications are necessary in the burners to change from one fuel to the other.

The pressure in a container varies with the temperature. Under normal conditions, the pressure in the per-

square-inch gauge in a container will be about as follows for normal butane and propane at the temperatures listed:

	N-butane	Propane
32° F	1	54
60° F	12	92
100° F	38	172

Normal butane will produce about 6.54 cu ft of vapor per pound and propane will produce about 8.62 cu ft of vapor per pound. The quantities of vapor given are based on measurement of the gas at 60°F and atmospheric pressure at sea level.

The above data is based on the pure products; commercial butane and propane may contain small quantities of the neighboring hydrocarbon members of their family series. The Liquefied Petroleum Gas Assn. recently made a survey of commercial products and established the following table of average values for certain properties of butane and propane:

	Butane	Propane
Btu per cu ft vapor	3280	2516
Btu per lb	21221	21591
Btu per gal liquid	102032	91547
Cu ft gas per lb	6.506	8.58
Cu ft gas per gal liquid	31.26	36.39
Lbs per gallon	4.81	4.24

A kilowatt is equivalent to 3412 Btu whether 110 or 220 vt.

The Btu in a cubic foot of city or manufactured gas will vary, depending on how it is produced and the raw material used to produce it. City gas produced from either coal or oil may range from as low as 325 Btu per cu ft to 600 or 700 Btu per cu ft. However, for any one city, the heating value of the gas will be quite uniform. If the city gas is supposed to have a heating value of 500 Btu per cu ft, this value will be maintained

within fairly close limits. The city utility supplying the gas should be contacted in order to learn the specifications of the gas they are supplying.

Natural gas, which has replaced most of the manufactured gas in the cities throughout this country may also vary in its heating value from as low as 800 or 900 Btu per cu ft to 1100 or 1150 Btu per cu ft. Here, again, the heating value of the gas distributed in any one city or area is fairly constant.

The elevation above sea level may change the base for measurement of the gas and thereby the heating value per measured cubic foot.—Ed.



LPG that is unodorized must be so marked

Japan

Our company distributes L.P. gas in Japan. We are a subscriber of your magazine and read it with much interest.

One of our customers wants to buy deodorized butane for aerosol, so we think you will be able to help us solve this problem. Do you know if there is any information available on this question? If an American company is engaged in the process of deodorization or sells necessary apparatus, would you please introduce us to this company?

L. de P.

We do not know of any published information regarding the use of butane as the pressuring fluid in aerosol type dispensers. It is used extensively in the country as the propellant in

Information desk

these dispensers. It is not odorized for this purpose.

L. P. gases are odorless when properly refined and processed, and in most cases the odorant is added before shipping from the refineries. When the L. P. gas is to be used for special services where the odorant is objectionable in the end use, no odorant is added before shipping.

Shipping unodorized propane or butane is accomplished under special permit in properly marked transport containers.—Ed.

Where you can obtain orifice charts

Illinois

We are a subscriber to BPN and would like information on various orifice charts and orifice capacities for natural gas as well as L. P. gas.

Please send us whatever pocket-size booklets and pamphlets you might have on orifice sizes for natural gas and L. P. gas with rates, etc., for space heaters, water heaters, ranges, dryers, etc.

If you do not have charts available, we would appreciate your

advising us on where to obtain literature on orifice charts so that our servicemen might carry some while on duty.

E. P. C.

Both the *Handbook Butane-Propane Gases* and the *Bottled Gas Manual*, published by BUTANE-PROPANE News, contain tables of orifice capacities for propane, butane and mixed gases. The American Gas Association, 420 Lexington Ave., New York, publishes a book entitled *Gaseous Fuels* which contains orifice capacity tables for natural gas. The two handbooks are full size books, but the *Bottled Gas Manual* is 5 x 8 in. (approx.).

The AGA also publishes service handbooks covering all approved makes of water heaters, ranges and clothes dryers.

Some of the following companies did have small books or charts containing orifice capacity tables: Anderson & Forrester, 3563 Larimer St., Denver, Colo.; Eclipse Fuel Engineering Co., 1100 Buchanan St., Rockford, Ill.; Fisher Governor Co., Marshalltown, Iowa; Gas-Kit Co., Inc., 64 Parker Terrace, Glastonbury, Conn.; Harper-Wyman Co., 8550 Vincennes Ave., Chicago, Ill.; and The Bastian-Blessing Co., 4201 W. Peterson Ave., Chicago, Ill.—Ed.



Portable instrument measures mixtures

Idaho

Is there an instrument that you can put in a container or take into a room or building that will register if the L.P. gas mixture is at an explosive point?

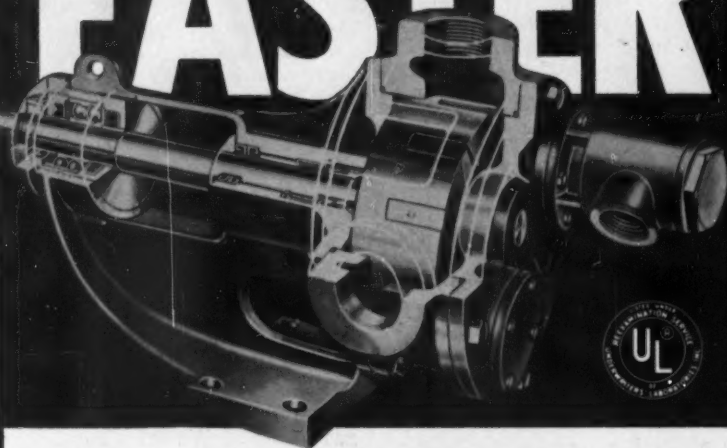
If so, where can it be purchased and for how much?

D. B.

Yes, there are some portable instruments known as combustible gas analyzers which can be used to check for combustible atmospheres in the open, in buildings, or in rooms, and in containers.

Among others, the following companies make such instruments and will send you complete descriptive literature and prices covering their products for this service: Mine Safety Appliance Co., 201 N. Braddock Ave., Pittsburgh; Davis Emergency Equipment Co. Inc., 45 Holleck St., Newark, N. J.; and Johnson-Williams Co., Palo Alto, Cal.—Ed.

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Now you can step up your delivery of LP-Gas as much as 100%. This new pump can be operated up to 700 RPM and at a maximum differential pressure of 125 psi. With 2½-inch ports and the pump connected to sufficiently large inlet lines and fittings, this full rated capacity is assured. New Viking needle bearings in pump brackets make this speed possible.

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American® LP-Gas Metered Service

- ▶ End Costly Cross-Hauling and Out-of-Fuel Calls!
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- ▶ Customers Like Utility-Type Service!

Ask your American representative about the many ways American LP-Gas metered service can help build loads and cut your operating costs. He can also tell you about the models of Aluminumcase and Welded Steelcase meters and their advantages for all LP-Gas applications.



WC-45-LPG WELDED STEELCASE. Light weight, sturdy, economical—ideal for average domestic services without central heating. Incorporates removable soldered top, internal, counter-type index. Nylon valve guides and bellows-type, molded Duramic diaphragms for LP-Gas service... lifetime corrosion protective finish. Rated capacity 45 cfh propane at $\frac{1}{2}$ -inch w.c. differential — 5 psi working pressure — $\frac{1}{2}$ -inch F.P.T. connections — shipping wt. 8 lb.



AL-110-LPG ALUMINUMCASE. Designed for medium-sized homes with space heating and for small commercial loads. Compact, light weight, die-cast aluminum alloy construction provides high resistance to impact damage... reduces shipping and handling costs. Rated capacity 110 cfh propane at $\frac{1}{2}$ -inch w.c. differential — 5 psi working pressure. Available with $\frac{3}{4}$, $\frac{1}{2}$ or $\frac{3}{8}$ -inch F.P.T. connections — shipping weight 17 lb.



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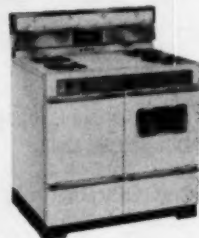
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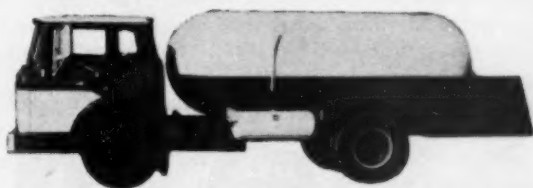
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Without obligation, and in complete confidence, I would be interested in discussing the profit possibilities of an independent Skelgas Franchise with one of your managers. I am particularly interested in:

- ☐ How to gain operating cash from accounts receivable.
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Dependable Products



The industry in action

THE SALES SCENE

110 million gas appliances!

There are now 110 million gas appliances in use in American homes, AGA reports. The association made these figures known following a year-end analysis of the residential market.

The total represents a gain of 3 million over a year ago.

The 110 million units are divided among 40 million customers, 31 million of whom are on utility lines, with 9 million beyond the mains.

Heating equipment led the parade with nearly 44 million, including 13 million central heating systems, 24 million space heaters, 7 million wall and floor furnaces.

Ranges ranked next with 34 million, followed by water heaters, 25 million; clothes dryers and refrigerators, over 3 million; incinerators, 500,000; gas lights, 300,000; air conditioning systems, 32,000.

Unified air conditioning display

For the first time in history, the gas industry will have a "unified" exhibit at the 15th International Heating and Air Conditioning Exposition in Chicago Feb. 13-16.

Participants will include Arkla Air Conditioning Corp., Caterpillar Tractor Co., Ready Power Co., and A. O. Smith Corp.

At least 40 other manufacturers of gas heating and air conditioning equipment plan to exhibit in other areas of the exposition.

A crowd of 25,000 is expected to attend the show, sponsored by American Society of Heating, Refrigeration, and Air Conditioning Engineers.

Gas utility sales hit peak

The LPG industry's sometime-friend, sometime-competitor, the gas utility industry, set new records in 1960. Dollar sales rose 12 percent to a high of \$5.7 billion.

The 1400 gas transmission and distribution companies served a record number of customers—33.5 million—at year's end. Among them, these customers used 93 billion therms (1 therm equals 100,000 Btu) during the year, another record.

Steady furnace business forecast

Shipments of warm air furnaces in 1961 should approximate 1960 levels, predicts the Department of Commerce. If there should be some governmental stimulus during 1961, there may be an

increased rate of single family starts during the latter half of the year, which would be reflected in increased shipments.

Plans for replacement and modernization and rehabilitation of existing homes are also expected to increase. New markets seem to be developing for suspended, horizontal-type furnaces, the department observes.

Dryer, combo sales slip

Manufacturers' sales of home laundry appliances in November totaled 426,426 units, down 12.3 per cent from the 486,325 units sold in November 1959, according to American Home Laundry Manufacturers' Association. Combination washer-dryers were down 22.3 per cent, gas dryers were down 8.3 per cent, and electric dryers were down 4.6 per cent.

SUPPLIERS

Socony buys Anchor Petroleum

Socony Mobil Oil Co., Inc., has purchased the assets of Anchor Petroleum Co. of Tulsa, Okla., a major wholesaler of LPG. Mobil Oil Co., Socony's operating division for the U. S. and Canada, will operate the new firm.

W. A. Baden of Tulsa, president of Anchor, will continue with Mobil Oil in a consulting capacity. As part of the transaction, Socony acquired the stock of Petrolane Gas Co., Inc., a subsidiary of Anchor, and a retailer of LPG in Louisiana, Mississippi, Alabama, and Florida.

The purchase of Anchor's assets will strengthen Mobil Oil's position in areas where the company has not been prominent in the sale of LPG. Their past sales have been chiefly in the northern and northeastern states.

Cities Service Oil Co. changes name

Cities Service Oil Co., with headquarters in Bartlesville, Okla., has changed its corporate name to Cities Service Petroleum Co.

The consolidation of exploration, production and related activities follows the exemption of Cities Service from the Public Utility Holding Company Act, to which it had been subject since 1941.

Cities Service operates directly and through 15 affiliated natural gasoline plants. It also has an interest in 12 others, as well as underground storage projects in strategic areas with a total capacity of approximately 1,500,000 bbl.

The industry in action

Nesbitt buys assets of Norman

John J. Nesbitt, Inc., Philadelphia manufacturer of heating, ventilating and air-conditioning equipment, will acquire the assets of the Norman Products Co., Columbus, Ohio. This company will continue under its same management as a division of Nesbitt. The move will strengthen the competitive position of both companies in the gas-fired products field. All gas-fired products sold by both companies will be manufactured at the Norman Products Co. plant.

Heating dealers head for Miami

Janitrol Heating and Air Conditioning, a division of Midland-Ross Corp., will hold its third annual "Goodwill" get-together in Miami Beach, March 13-15. More than 1000 select dealers, wholesale-distributors and sales representatives are expected. Janitrol will unveil new product lines designed for roof installation and discuss its future sales plans.

Humble sets up regional divisions

Humble Oil & Refining Co. has announced a long-range plan for organization of the consolidated company's operations and for streamlining its management. Main feature of the plan is the establishment of four operating regions for exploration, production and marketing with bound-

aries drawn according to geographic lines. Each new region will be headed by a regional vice president assisted by a general manager.

Divisions of the company such as Carter, Esso Standard, Humble and Oklahoma-Pate will cease to exist when the entire program is completed.

Union Texas invades electronics

Union Texas Natural Gas Corp. of Houston, a major supplier of LPG, will enter the field of applied physics and advanced electronics through a newly formed company, Quantatron, Inc. of Santa Monica, Calif. In addition to product development and manufacturing, Quantatron will conduct research work in the interest of developing additional products for industry and government use.

Mylander joins Algas in sales-service

Roy Mylander has joined the American Liquid Gas Corp.'s (Los Angeles) carburetion division as a sales and service representative. He will cover the nation in the principal role of troubleshooter on a distributor level.

For a number of years, Mylander was with the Ensign Carburetor Co. in Fullerton, Calif., as installation engineer.

MARKETS

U. S.-Canada LPG demand investigated

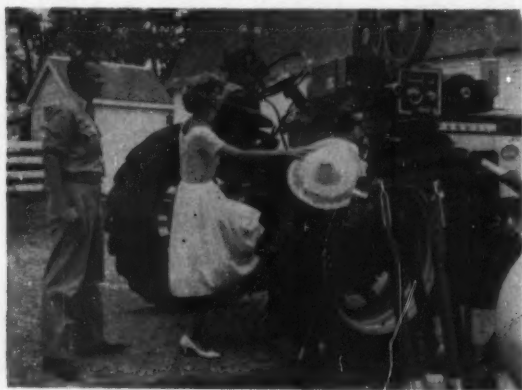
Arthur D. Little, Inc. of Cambridge, Mass. is undertaking an analysis of the growth in LPG demand in the U. S. and Canada under the influence of changing transportation and distribution economics and new sources of supply.

The analysis is designed to identify regions and end uses within the two countries, and to determine the economics of expanding supply to satisfy this demand growth.

The study is expected to be completed in Mid-1961.

Duct furnace installation approved

The American Gas Association has given its approval to downstream installation of Reznor Mfg. Co.'s DS series modular duct furnaces in year-round packaged air conditioning systems. AGA approval requires the use of corrosion-resistant materials in heat exchangers, carryover parts, and pilots, and provision for proper elimination of condensate.



A 15-minute color film, "Living Pleasure," has been produced by the National L. P. Gas Council showing the many uses of LPG in residential, farm and commercial areas. Here the cast is on location at the modern farm where the action is centered. The film will be shown on 200 TV stations, and by council members in their trade territories.

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Proved in 100 million miles of fleet tests to bring you 50% more original-tread mileage and much greater drive-wheel traction than any other regular original equipment Firestone truck tire! The all-new, *all-wheel position* Transport-100 wears far longer—actually gives you faster starts and quicker stops when half-worn than other original equipment truck tires when new. *And*, it's the first truck tire anywhere truly *noise-treated* for quieter running. Yet it costs no more! In Nylon or Tyrex® rayon cord, tubeless or tubed. See it at your Firestone Dealer or Store!

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NEW INNER-RIB BLADED TREAD increases traction, lateral stability. Positive steering on curves—wet or dry!

NEW—UP TO 30% DEEPER GROOVES, buttressed for strength; longer-lasting tread on *any wheel position*.

NEW EFFICIENT TREAD DESIGN: broad center rib equalizes load distribution, reduces slippage, increases mileage.

NEW "STONE GUARDS" built right into the tread keep it free of gravel and pebbles to increase truck tire life.

NEW FLATTER CROWN means equal pressure throughout tread print—for extra load-hauling, extra mileage.



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The industry in action

CTA buys 300 diesels

Chicago Transit Authority last month purchased 300 diesel-powered buses at a total cost of \$7,884,273. Following recent motor fuel studies, it had been recommended that CTA standardize on propane buses but buy some diesel-powered models for purposes of comparison. The engineers found that propane has a maintenance cost advantage of two to three cents per mile over diesel. (For the full report on the studies, see January BPN, page 64.)

AGA develops grease incinerator

Recognizing the problems resulting from grease accumulation on filters and exhaust systems, AGA describes the construction and performance of an experimental grease vapor removal type gas-fired incinerator in Research Report No. 1323. This incinerator accomplished 97.5 per cent grease removal at 200 cfm exhaust air flow rate with a gas consumption of 47,000 Btu per hr. Other filters tested under the same conditions removed only 80 per cent.

Copies are available from the AGA Laboratories, 1032 East 62nd St., Cleveland 3, Ohio.

AWS, ASTM revise standards

The American Welding Society has revised its booklet of terms and definitions. The first change in 12 years that includes new material, this booklet is considered to be the most important standard published by the society.



Max McCane, manager of Petrolane Gas Service of Twin Falls, Idaho, has won the national award in the Manchester 1960 "Shoot For The Stars" L. P. gas burner sales contest. Shown presenting the \$100 cash first place money to McCane is Harry Reifschneider at left, Manchester's northwest representative. Looking on are Lois Hazen and Elton Tousley.

The American Society for Testing Materials has also announced a new publication. It is a compilation of 168 standards on petroleum products and lubricants including methods of testing, specifications, definitions, charts and tables. The compilation is being published in two volumes.

LPG in slaughter house debut

The first use of LPG in Swedish slaughter houses was recently reported.

A slaughter house at Vimmerby, Sweden, is using an LPG-fired gas oven to treat pig carcasses. After they are scalded, they are placed in a 500-600-deg. C oven for a few seconds. This treatment insures effective sterilization and is reported not to blacken them.

New butane lighter hits market

A new butane lighter has made its appearance on the market. Named the Bentley, it is being distributed nationally. Refills are interchangeable with Schick refills.

The Bentley Lighter Corp. has purchased the factory and production facilities formerly devoted to the manufacturer of Schick butane lighters.

SUPPLY & TRANSPORTATION

UPC gets 22,000-gal. cars

Union Petroleum Corp., Tulsa, has received the first of its kingsize LPG tank cars from General American Transportation Corp. of Chicago. With a capacity of 22,000 gal. each, these are the largest such cars to be delivered in any quantity to the industry.

The large cars will be added to Union's fleet of standard 11,000 gal. cars to provide greater flexibility in distributing LPG throughout the U. S.

Northern to build extraction plant

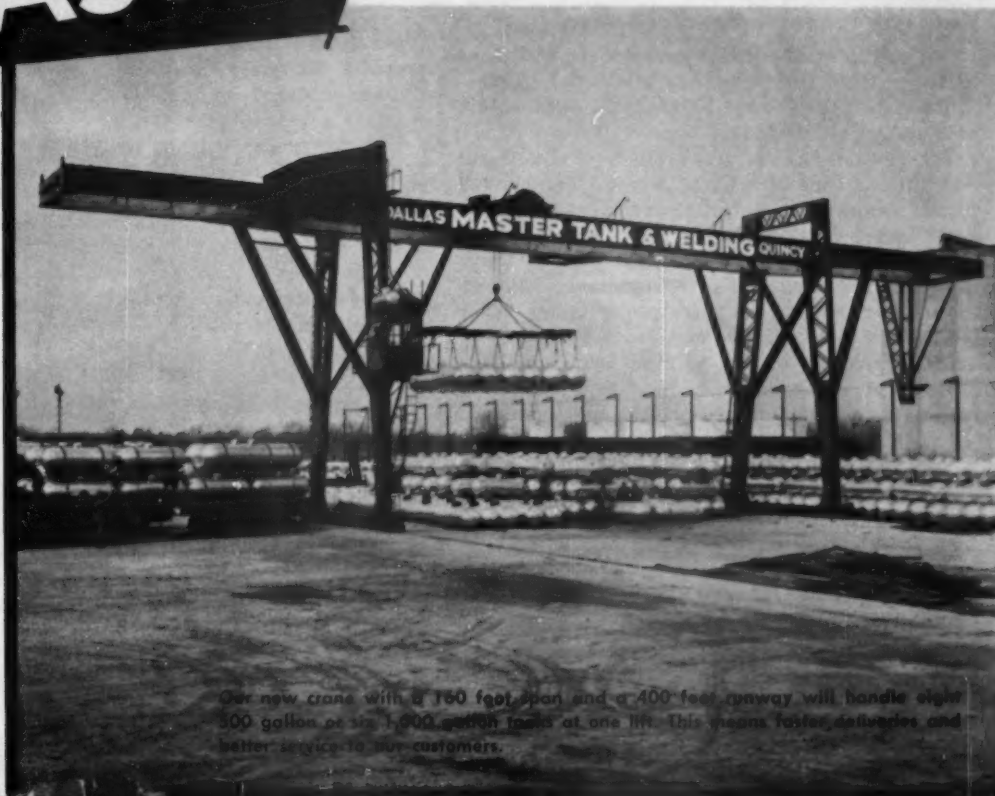
The Fluor Corp., Ltd., Los Angeles, has been awarded a \$10-million contract by Northern Gas Products Co. to perform the engineering, purchasing of materials and construction of a "grass roots" extraction plant, and other facilities, to be located at Bushton, Kan.

The facility will use a low-temperature process and will have the capacity to recover propane and heavier hydrocarbons from 896-million standard cu ft of natural gas daily.

Construction is scheduled for completion in August, 1961.

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FOR IMMEDIATE DELIVERY!**



Our new crane with a 160 foot span and a 400 foot runway will handle eight 500 gallon or six 1,000 gallon tanks at one lift. This means faster deliveries and better service to our customers.

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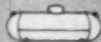
TRANSPORTS



TANK TRUCKS



STORAGE



DOMESTIC



FILLING STATIONS



FARM CARTS



REFINERY



LINE PIPE

The industry in action

New line makes second crossing

One month after it had completed its first river crossing (the Tombigbee, in Alabama), Trans-Southern Pipeline Corp. finished its second, this time under the Tallapoosa river.

The new all-LPG is a subsidiary of Transcontinental Gas Pipe Line Corp., a major natural gas carrier whose main line runs from Texas to New York and points north and east. Since it will follow the mainline route as far as the Carolinas, crossings are being laid first, simultaneously with those being laid for the gas pipeline. These latter are part of a looping and expansion program.

Other river crossings will be made similarly during the winter months, prior to a kickoff of full-scale construction of the 1111-mile system in the early spring.

Trans-Southern plans to have 60,000 bbl. moving to its terminals by next fall.

Sun plans new LPG source

Construction of a new gas plant, at a cost of approximately \$9.3 million, at Sun Oil Co's refinery at Marcus Hook, Pa. will begin in November. The plant will have an initial capacity to separate 14.4 MMcf of dry gas, 7100 bbl of liquefied propane and propylene, 13,200 bbl of liquefied butane, and 18,000 bbl of gasoline a day.

REGEIMBAL: WASHINGTON

The new administration: a forecast

The country attacks President Kennedy's "New Frontiers" this month. The new Administration and a moderately changed Congress will move quickly on several major Democratic Party programs.

One of the first moves will be an attempt to push through a raise in the minimum wage to \$1.25 and extend coverage to several million additional workers. This is very likely to pass, but probably will be watered down a little.

The new Administration will move a little more slowly in its programs of vastly expanding public power projects. These will be blueprinted in mid-spring, and included in the budget for the new fiscal year beginning next July 1.

A measure to expand farm cooperatives is planned, probably to be included in some overall legislation expanding the government's farm program. Congressional staff economists under Sen. Paul Douglas, D., Ill., are already warning of further declines in farm income unless the government steps in with bigger payments and production cutbacks.

While new attempts to raise the interest rate on government REA loans, cut back the program, and revise tax status of farm cooperatives will be made in Congress, there is no chance for success in the foreseeable future.

Other proposals to be revived this year include a measure to require suppliers to charge large direct-buying retailers more than wholesalers; a bill to require all credit charges, interest, service fees, to be explained to consumers in writing; and a new effort to pass a national fair trade law.

Here's the outlook on other major legislation:

Depressed area legislation, vetoed by President Eisenhower in the past session, will be revived. It will call for about \$250 million in federal loans to aid economically depressed areas. *It will probably pass.*

Bills to provide federal aid to schools and home construction will be unveiled in a new, more costly form. *This will also pass.*

Tax depreciation will be reformed. Other tax reform measures may find their way to a vote.

Attempts to legalize secondary boycotts will be made.

Legislation calling for presidential hearings on price and wage increases will be aired. Along these lines, the Congress will also see bills calling for corporation pre-merger notification to federal agencies and for destruction of the "good faith" defense to price discrimination charges.

Restoration of a tax reduction for lobbying as a business expense should come to a vote.

Bills to spur U. S. investment overseas will be considered.

Undoubtedly, Congress will also take up legislation dealing with patents, air and water pollution, medical care for the aged, and reorganization of regulatory agencies and the Defense Dept.

Udall will fight for public power

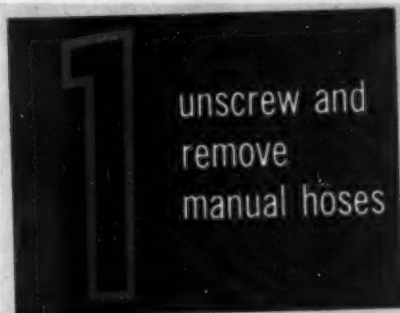
President Kennedy's selection of former Arizona congressman Stewart L. Udall as Secretary of the Interior reinforces the outlook for an era of drastic expansion of public power under the new Administration.

While the new President is expected to rule his Administration with an iron hand—getting most of his counsel from behind-the-scenes advisors—he has named a cabinet which for the most part shares his programs and philosophies.

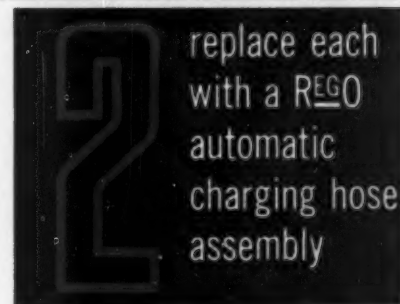
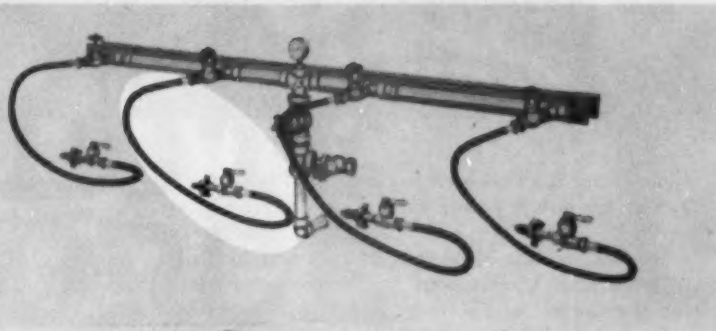
Public power expansion has been a major plank in both the Democratic Party and the Kennedy campaigns.

The new Interior Secretary is a staunch "liberal," and avid follower of Harold Ickes, the ram-rod of the tremendous public power expan-

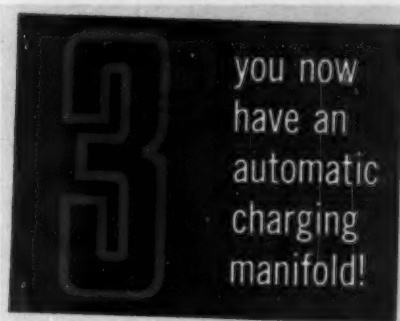
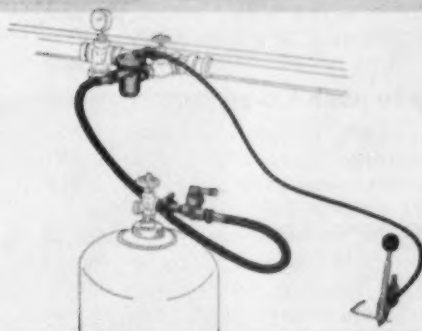
simple as 1, 2, 3...



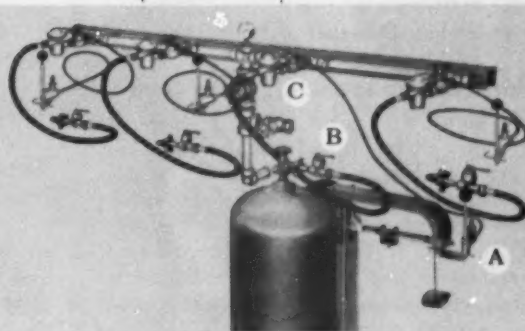
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manual hoses



replace each
with a REGO
automatic
charging hose
assembly



you now
have an
automatic
charging
manifold!



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with REGO automatic charging hose assemblies**

With an easy-to-install REGO Automatic Charging Hose Assembly, one man can do the job of two or more—and do it faster, and with greater safety! The principle is simple: a control valve connected to your present scale *automatically* shuts-off the manifold the instant filled-cylinder weight is reached. That means that a single operator can hook-up and begin filling any number of cylinders—instead of waiting and watching over one at a time. You'll find your REGO Automatic Charging Assembly begins paying for itself the day it's installed!

Simple to operate. Merely place empty cylinder on scale (Fairbanks-Morse or Howe only) on which cylinder tare weight has been set. Connect loading hose. Set scale beam to desired filled weight and move lever on master cylinder (A) to vertical-up position. Flip open quick acting valve (B) on loading hose to rapidly fill cylinder. Master cylinder will shut off control valve (C) the instant the scale balance moves to center.

More economical to operate and install because self-contained hydraulic control requires no outside compressed air source....Choice of filling connections.

REGO

Order now from your
REGO distributor or write:



The **BASTIAN-BLESSING** *Company*

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Chicago 46, Illinois

Dept. 31-B

The industry in action

sion during the Roosevelt regime. Udall has been a fighter for public power during his Congressional service.

He has made it clear that he will try, in time, to push huge government hydroelectric projects for the Columbia, Colorado, and Missouri rivers.

He is also likely to fall in line behind the new Administration's backing of a fuels policy.

Farm group to push Co-op tax

The powerful Farm Bureau Federation is continuing its "aggressive" support for a fair single tax on farm cooperatives. The group says co-op income paid in cash to farmers should be taxable income to the farmers, and if not paid in cash, be subject to the normal corporate income tax to be paid by the co-op. Co-op groups oppose this recommendation, however, and have successfully blocked it. The Federation continues to support government subsidization of REA co-ops.

Second-half appliance sales gain seen

Appliance sales will coast along at present rates for the first six months of the new year, but climb during the last half, government economists cautiously predict. U. S. Commerce Department officials say the result will be a slight gain for the entire year of 1961 over 1960. Sales of household appliances last year of \$4.9 billion were down 10 per cent from 1959, the Department notes.

Your ads may put you under FCC

Small dealers doing business in only one state will have to watch their advertising if they want to keep the federal government from snooping into their operations. The Federal Trade Commission had decided it can exercise authority over a firm engaged in strictly local business if the firm advertises in newspapers and other media which cross state lines, such as radio and television. FTC says that circulation of this advertising tends to lure customers in from other states.

FOREIGN

Robertshaw opens in Japan

Robertshaw-Fulton Controls Co. has formed a new subsidiary to manufacture automatic controls in Japan. The subsidiary will be known as Robertshaw Orient, Ltd. The plant will be geared to mass production of controls to fill the needs of the fast-growing markets in Japan and Southeast Asia, the Philippines, Formosa, and Hong Kong.

Superior buys out Quebec firm

Superior Propane Limited of Toronto has acquired the assets of the Gas Propane Ste Marie Co. of Ste Marie de Beauce, Province of Quebec. The customers previously serviced by Gas Propane in Ste Marie de Beauce will be serviced by the Kenebec Division of Propane in Quebec City.

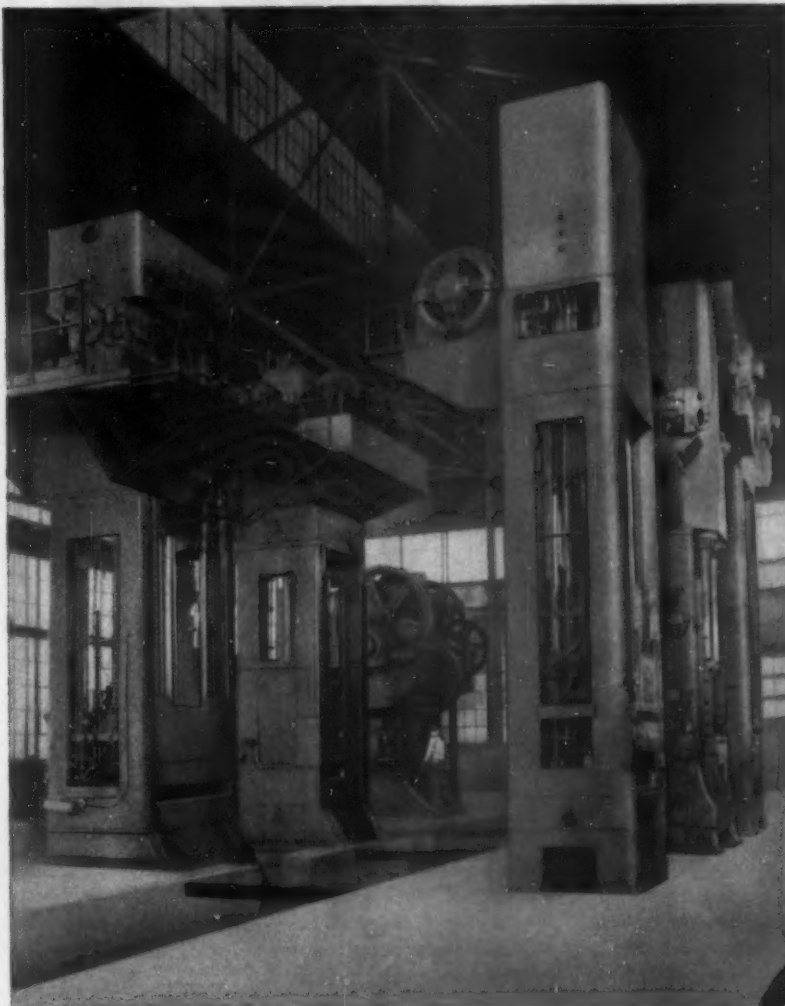


CURRENT L. P. GAS & L. R. GAS PRODUCTION & INVENTORIES
(A. P. I. figures - in thousands of gallons)

	Propane	Butane	Bu-Pro Mix	Iso- Butane	Other Mixes	Total LPG	Total LRG
Production (U. S.)							
Dec. '60.....	361,529	166,840	50,975	59,817	79,527	718,688	277,101
Dec. '59.....	363,773	186,881	50,645	61,087	75,233	737,619	263,670
'60 to date....	4,164,605	2,055,933	643,695	683,357	862,147	8,402,737	3,215,332
'59 same period	3,708,060	2,013,514	684,745	640,581	744,013	7,820,823	2,799,322
Inventories (12-31-60)							
Zone A.....	16,045	1,616	24	—	10	17,695	16,680
Zone B.....	54,419	13,353	—	561	963	69,296	23,758
Zone C.....	80,580	24,633	465	5,515	—	111,193	8,826
Zone D.....	98,799	12,484	19,912	1,586	102	132,883	1,053
Zone E.....	146,200	106,748	1,532	17,820	8,449	280,749	56,912
Zone F.....	244,807	52,092	1,478	9,622	63	308,062	4,426
Zone G.....	3,449	1,086	8,902	—	64	13,501	773
Zone H.....	990	299	204	165	85	1,743	36,671
U. S.....	645,289	212,311	32,517	35,269	9,736	935,122	149,099
U. S. (12-31-59)	530,671	159,427	29,778	34,209	19,376	773,461	103,791

SHEER BRUTE FORCE

CONTROLLED FOR YOU!



The presses you see — represent sheer brute force... force capable of exerting many, many hundreds of tons of pressure at any one given instant... force capable of leveling a bridge, destroying a marketplace, obliterating a building.

Happily *these* presses represent a different kind of force... a constructive force, controlled for your benefit to the finest tolerance... a force which will be responsible for forming the same fine cylinders, of the same high quality with the same assurance of prompt, regular service you have come to accept as "normal" from the Linde Company.

These are the presses which Cylinders, Inc. has moved 1,000 miles from Speedway, Indiana to Linden, New Jersey to guarantee you the finest product available in the cylinders field.

These presses then are the heart of the matter. Backing them are the washers, the dryers, the welding equipment — all of the more than one thousand pieces of specialized equipment which have travelled this long trek to see that *you* — the user — will be assured of the finest product available.

We at Cylinders, Inc. are proud to have been selected to succeed the Linde Company.

We are proud to serve you.

Be sure to visit our booths 181 and 182
at the LPGA Convention, April 30-May 3, 1961,
Conrad Hilton Hotel, Chicago.

Cylinders, Inc. Successors to the propane and refrigerant cylinder manufacturing
business of *Linde* Company, Division of Union Carbide Corporation.

FEBRUARY, 1961



1200 WEST BLANCHE ST., LINDEN, N. J.

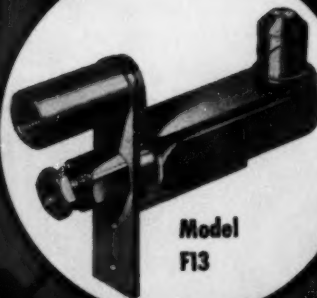
BASO[®] PILOT BURNERS



Model
R200

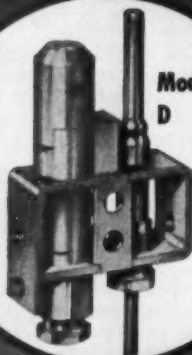


Model
A10

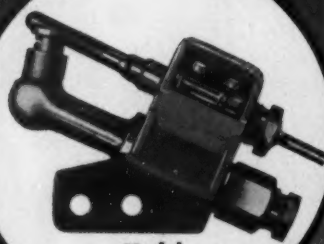


Model
F13

B First in Quality,
Design and Service



Model
D



Model
B10



Model
A111

Whatever your gas product application, there's a BASO pilot burner designed to meet your most exacting requirements. Illustrated here are only a few of the many models of pilot burners that can fit your gas appliances—central heating systems, water heaters, boilers, floor furnaces, gas ranges, space heaters, clothes dryers, and others.

BASO pilot burners are recognized throughout the gas industry for their quality, dependable performance and ease of installation. Each general type has a variety of tips, mounting brackets and replace-

able orifice fittings for different fuel gases to ensure a satisfactory installation—vertical, horizontal or inclined mountings.

For complete information on BASO pilot burners, call your BASO sales engineer, or WRITE

BASO **B**
INC.

Milwaukee 1, Wisconsin
Dept. SM-5

"Pioneers in thermoelectric gas controls"

Beyond the Mains

By WILLIAM W. CLARK • Editor



"Unity" can help sell appliances

OVER THE PAST SEVERAL YEARS, a lot of utility-dealer "unity" programs have been tried, and most have been found wanting in one respect or another. So it's encouraging to come across one that has the necessary ingredients for success.

The East Ohio plan (described on pages 40, 43) appears to be such a plan.

It's main feature is that it reimburses the dealer for customers lost. Now this in itself is not new. But the reimbursement plans that have come to our attention have not used the same approach as the East Ohio program. Under their provisions, cooperating dealers are paid on a sliding scale for customers lost to the utility. If the customer was a new one, the dealer was paid a relatively high price; if an old one, very little. If he'd had the customer for more than a maximum number of years, the dealer received nothing.

Apparently, utilities employing this plan regarded it as a sort of amortization of the dealer's investment in the customer. After a specified number of years, presumably he had made enough profit off the customer to write off his selling and installation costs.

The plan effected by East Ohio Gas Co. takes a different tack. There, customers are assigned a value based upon the number of gas-consuming appliances they have. In addition, the more gas an individual appliance uses, the more it is worth to the utility.

There is no amortization scheduled in the plan. An old customer is worth as much as a new one—if he has a comparable set of appliances. The dealer has something of value to sell; the utility buys it according to that value.

Thus the dealer is encouraged to build volume customers. He can let out the reins on his appliance salesmen. If he has to sell appliances on short margins in order to get a gas load, the sudden loss of that load is not going to render the appliance sale unprofitable.

This encouragement of the dealer to sell more appliances can be most important for the utility. Suddenly, under such a plan, an LPG dealer's appliance selling takes on a new meaning. He becomes a cooperating appliance dealer as well as a cooperating gas dealer.

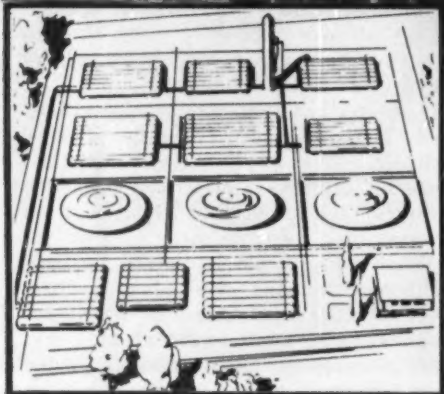
In past years, many utilities have set up cooperative plans for appliance stores in their territories. But it's been an uphill battle all the way. Most stores don't care a whit whether the appliance they sell uses gas or electricity, so utilities have been hard put to get much positive cooperation out of them.

Isn't it possible now that, wherever geography permits, LPG dealers could become the utilities' best appliance selling allies? While it might not be feasible for utilities to encourage dealers to step up their selling activities in the heart of the city, at least they could be given help on the fringes. This urging could be backed up with some solid merchandising help—co-op advertising, billboards, sales leads, financing, demonstrations, referrals—the whole range of aids that have been extended to appliance stores in the past. Most important, they should cover him on appliance servicing, which is a major headache and a major deterrent to many dealers' selling appliances to non-gas customers.

As long as utilities must be committed to squeezing the dealer out of some of his best gas markets, why shouldn't they help to put him more firmly into the appliance markets?

TRINITY BUILDS BIG

(TRINITY BUILDS SMALL)



Trinity has facilities to fabricate your storage needs — anything from the smallest domestic LPG systems to the largest storage terminals. Geographically situated in the LPG industry center, Trinity has a long line of experience in storage equipment fabrication. Trinity vessels are built in accordance with the ASME Code and state regulations to give greater performance with a minimum of maintenance. Whatever your storage need, Trinity can satisfy it.

TRINITY



STEEL COMPANY, INC.

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FRANCESVILLE, INDIANA • WHEN IN MEXICO CITY, VISIT TANQUES de ACERO TRINITY, S.A.

• *LPG "takes over" a resort*



Six-inch main, already wrapped, gets circumferential weld preparatory to being lowered into the trench. A network of such mains is now serving LPG along the south shores of Lake Tahoe, one of the nation's fastest growing resorts.

Fledgling LPG utility serves booming Tahoe area

A BPN Exclusive

LAKE TAHOE, once one of the West's most exclusive vacation retreats, is now one of its fastest growing resort areas, serving millions of vacationers the year around. You can easily locate Tahoe in your mind's eye by placing it exactly at that point at which the California-Nevada state-line stops heading straight south and veers sharply to the southeast. You could also locate Tahoe by saying it's: 32 miles south of Reno, the divorce capital of the nation; less than two dozen air miles west of Carson City, the capital of Nevada; and only a few mountain miles east of Squaw Valley, last winter's world sports capital.

The lake itself is kidney-shaped,

roughly 21 miles long and 11 miles wide. Most of its shoreline—and 14½ of the 17 villages dotting that shoreline—is in Northern California. That half village? It's Stateline, shared by California and Nevada at the southern tip of the lake.

The 6000-ft.-high community of Stateline and its two California neighbors, Bijou and Al Tahoe, are currently enjoying their second winter or piped propane systems. And therein lies quite a story.

For BPN readers, that story might begin with the recollection of the article in the September, 1960, issue on Pacific Delta Distributors, a buying group composed of independent Western LPG mar-



This is the South Shore of Lake Tahoe, dotted with fast-growing resort areas. South Tahoe Gas Co. is presently serving the area from two main plants, one at Al Tahoe, the other at Kingsbury, Nev., just off the northeastern tip of the map.

LPG at Lake Tahoe

keters. One sentence near the end of that feature said: "Recently, the members started a piped gas service to serve the California and Nevada area on Lake Tahoe's south shore."

It's that southern shore that has shown the most spectacular development. Where there were only a couple of villages a couple of years ago, a 6-mile stretch of the southern shore now has seven communities, built or being built. In Nevada, there's Kingsbury and half of Stateline. And from the state-line westward, there are: Stateline (Calif.), Bijou, Al Tahoe, Tahoe Valley, Tahoe Keys, and Tallac Village. This growth has been spurred by such ambitious promotional efforts as full-page ads in "Life" for Tahoe Keys, a fabulous marina-type, convention-center community under development, "A Venice of the High Sierras."

Established communities have also grown at a rapid rate. Where a block may have contained only a single house as recently as 12 months ago, it may now have 10 or 12 dwellings. Permanent population of the area now stands at between 8,000 and 10,000. In summer, the peak season, this figure skyrockets, the top estimate being 200,000, the lowest, 100,000.

Since the nearest natural gas line is approximately 75 air miles of rugged Sierra Nevada Mountain country away, any increase in population is bound to bring a resultant increase in LPG customers. No usage ratios are available, but the proportion using LPG is large, and it's a complete cross-section of the community.

LPG serves both commercial and domestic accounts. In the latter category are private homes, apartments, motels and camping trailer and mobile home courts. Generally, gas is used for all the normal

household loads, including heating. And heating is a year-round load because the 6000-ft. altitude means chilly evenings even in the peak summer season. Thus, the average customer has been inclined to rely on a bulk tank rather than on cylinders.

Four LPG dealers were serving the area in June, 1959, when a group of Pacific Delta dealers decided to form a piped propane company, South Tahoe Gas Co.

Why a piped system? One big reason was the rugged winter weather, which often makes road travel hazardous and sometimes completely impossible. Another big reason was the embryonic utility's conclusion that a piped system would mean lower distribution costs, even though the initial stage would cost \$500,000 and the eventual cost of a system serving the entire South Tahoe area would be ten times that amount, \$5 million.

The piped system also has an



exclusive advantage for customers, giving LPG an extra selling point. As with most resort areas, the communities cluster along a main highway—in this case, Highway 50 and the development in each community also hugs the highway. Along the mile of Highway 50 just west of the state-line, for example, there are some 60 motels, each with from 10 to 100 units. Supporting businesses, such as shops and service establishments, also try to stay close to the highway. Thus, every square inch of land is used and the space saved by doing away with a bulk tank is a definite point in favor of gas. And it's a point the other big heating fuel in the area, oil, cannot score.

South Tahoe Gas Co. provided the first piped gas service in the area on Sept. 17, 1959, serving the community of Al Tahoe, Calif., from a small bulk plant located there. Two months later, the communities of Kingsbury, Nev., and Stateline, Nev., began getting service from a much larger bulk plant in Kingsbury. In the ensuing year, the total number of meters has tripled, but it's still only 200, a tiny fraction of the eventual load.

That first plant is in the approximate center of Al Tahoe, with the town extending five to eight blocks in every direction. The company faced a definite handicap in that zoning and planning commission restrictions limited storage to two 1000-gal. tanks. A 120-gal./hr. Algas vaporizer sends out gas at 12 psi. through a 2-in., 1½-mile main. Single stage regulators reduce the pressure to 11 n. wc. in most cases, but there are some high pressure service systems. The size of the service to each customer varies with the prospective load.

Operating experience to date has shown a total absence of pressure drops. As a precaution, however, meters at the plant are checked hourly at night by a special patrol. Should a pressure drop be detected, management and service personnel would be called immediately to rectify the problem. Two of the staff members, incidentally, at-

tended an Algas school in Los Angeles to learn vaporizer servicing. The Al Tahoe plant, as well as the Kingsbury plant, was designed by Pacific Delta's Safety Engineer, Bill Hulse.

Currently, the Al Tahoe system serves 65 customers, including law enforcement agencies and other public buildings, a newspaper publishing company, doctor's offices, and apartment houses. The mains have been continually extended and will be further lengthened to meet customer demand. South Tahoe Gas officials believe that it is premature to attempt to estimate the potential market in the Al Tahoe area.

With piped gas service in Al Tahoe setting a historic precedent for the south shore area, the new gas company in November, 1959 proudly mailed its first "Service Report," a neat little newsletter, to businessmen and residents of the South Tahoe area. One of its proudest pronouncements was that work was well underway on the project of laying gas mains from the brand new Kingsbury plant to the State-line (Nev.) area.

Service from this plant also began in almost token quantity and still remains only a small fraction of its potential despite an ambitious 1960 expansion program. Currently, the plant serves an area of approximately 10 square miles. There are now 135 customers, 25 of whom are in Nevada (including a one-mile system in a housing subdivision), and 110 in California served by five miles of mains. Among these California customers are many of the biggest motels and casinos in the Stateline area.

The Kingsbury plant began as a fairly sizable installation, with an 18,000-gal. tank and a 200-gal./hr. vaporizer. Since then, a 30,000-gal. tank and a 400-gal./hr. vaporizer have been added. The units are coupled and operate automatically. A remote control system employs spring-loaded Okadee valves which are easily accessible for quick closing.

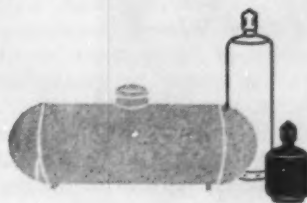
The Kingsbury plant is three-quarters-of-a-mile east of the state line. It's located 200 yards from Highway 50, on a side road. Since this is the land of the big snows, a line was laid from the plant to the highway, affording emergency access for unloading should the side road become impassable.

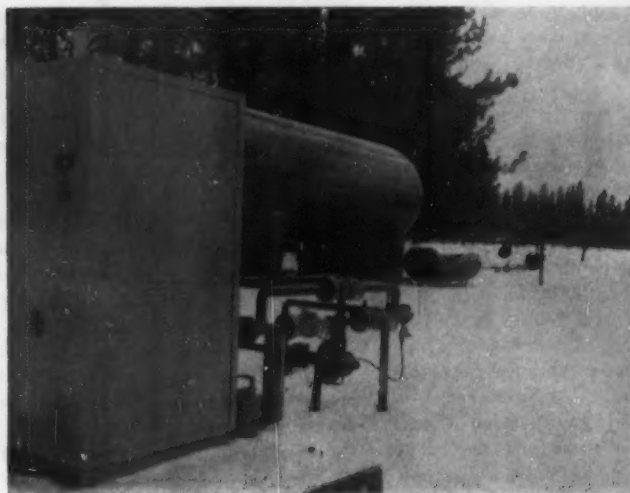
Fuel is trucked in from California sources. A fleet of trucks and trailers owned by Pacific Delta members assures a dependable supply despite the High Sierra location.

This plant supplies gas at 12 psi. to a 6-in. main running along Highway 50 toward the state line. South Tahoe Gas experienced no difficulties in getting the states of California and Nevada to agree on specifications for the system. Both one- and two-stage regulators are used. Branch lines and services vary from ¾-in. to 2-in. The 6-in., coated and wrapped, welded main is oversize, providing considerable storage capacity.

The first big expansion to the Kingsbury plant system came last summer when a Reno contracting firm laid approximately 24,000 ft. of 6-in. main. The contractor, Clarence Dietrich, placed, welded and connected the pipe. Standard automatic ditching machines made a 1-ft.-wide, 4-ft.-deep trench. A generous supply of granite, plus a surprising assortment of buried pipes and cables made progress difficult. Nevertheless, about 450 ft. was usually "made" each day by the eight-man crew.

Since the ground is frozen all winter, mains-laying must be confined to the tourist season. With perhaps as many as 200,000 people depending on a single highway, a trenching operation along that highway could conceivably cause havoc. Therefore, before any digging began, the infant utility hosted a meeting of local business and government leaders. A full explanation of the utility's program was presented and the cooperation of all was requested. A testimonial to the resulting cooperation is the accompanying photo, showing a gas company representative and the owner of one of the largest tourist-business establishments, standing side-by-side on top of a trench which had been covered





Vaporizer and smaller of two storage tanks at Stateline plant, surrounded by snow, stand ready to provide warmth to Tahoe residents.



Phil Gruener, South Tahoe manager, watches as workmen lower 6-in. meter at the state line.

for the week-end to insure uninterrupted business.

A much better publicized uninterrupted-business testimonial is that involving the new gas company, its piped propane, and one of its very best known customers, the world-renowned Harrah's State-line Casino and Theatre Restaurant. It happened last August when a forest fire caused a power blackout one weekend. Tourist crowds were at an all-time high. The nation's radio and television stations, newspapers, and magazines carried stories of famous entertainers performing by candlelight, and many of Tahoe's biggest restaurants being forced to close their doors in the faces of the huge crowds. Their kitchens, it seems, were all-electric.

Harrah's however, had been on the South Tahoe Gas system since December, 1959 and served thousands that week-end. The serving was on paper plates, since the electric dishwashers were not working, but Harrah's had plenty of gas-heated hot water! Thus, a nationwide public relations coup was accomplished, for gas in general and for LPG in particular.

The Kingsbury plant began serving California commercial and residential customers this past October. Pacific Delta supplied service personnel to connect meters and lines. Whenever a large addi-

tion is made to the system, this crew of experienced men moves into the area to bring service to the new customers as quickly as possible. On the California side, the Kingsbury plant expects to continue to extend its services, ultimately supplying 18 miles of main. On the Nevada side, the plans are not as ambitious, but 200-home Oliver Park will become the first new subdivision in the South Tahoe area to receive piped gas service.

In March, 1960, after less than six months of operation, South Tahoe Gas secured a rate reduction for its customers. Present monthly rates are \$2 for the first 100 cu. ft. or less, 60 cents per 100 cu. ft. (or fraction thereof) for the next 400 cu. ft., 54 cents per 100 cu. ft. for the next 500 cu. ft., and 32 cents per 100 cu. ft. for all gas over 1000 cu. ft. The monthly minimum is \$2.

Policy of South Tahoe Gas Co. is directed by an executive committee consisting of John Cavanaugh of Cavanaugh Bros., Reno, Nev.; Al Anton of Anton's Propane Gas Service, Ukiah, Calif.; and Ralph Weaver, president and manager of Pacific Delta Distributors and owner of Weaver Gas Service, San Jose, Calif. Also on the utility's board of directors are six others, all Californians: Ed Thronson, chairman of the board

of Pacific Delta and owner of Empire Gas Service, Santa Rosa; Louis Mark, owner of San Luis Butane Distributor, Atascadero and Lake Tahoe; Al Kamps of Kamps Gas Service, Ripon and Modesto; Ross May of Maco Gas Co., Lodi; Art Schilder, assistant secretary-treasurer of Pacific Delta; and William Moore, manager of Placer Gas Co., Auburn, Placerville and Colfax.

South Tahoe Gas is managed by Philip Gruener, who has more than 28 years experience in the fuel industry. Before taking over management of South Tahoe Gas in June, 1959, he spent seven years with Windsor Fuel Co. of Santa Rosa, Calif. The company operates two piped LPG systems and Gruener supervised purchasing, sales, and service for both. Previously, he had worked for Empire Gas Co. of Santa Rosa and McPhail fuel of nearby San Rafael.

South Tahoe Gas tries hard to keep customers in its service area and potential service area informed of its activities, particularly those involving expanding facilities. The previously-mentioned Service Report is mailed to both full-time and part-time residents of the area. News stories and photos are supplied to the two local newspapers, a daily and a weekly; and news is also sent to the local radio station.

Fuel customers who are beyond



Congested areas required numerous angles and bends, slowing construction work in downtown areas of cities served.



Gruener and Fred Dalling of the Sands stand at place where construction excavation was covered on weekend for business as usual.

South Tahoe's mains are served by its sister company, Placer Gas Co., until the mains are installed. When a customer goes on the piped system, his tank (or cylinders) is purchased for use by Placer Gas or is sold to other members of Pacific Delta.

The future for the fledgling utility is a bright one. It is bringing service to more than 95 per cent of the potential customers in its service area. And additional expansion is planned, beginning in 1961. Under the provisions of the California Public Utility Commis-

sion, the company can continue expanding that service area. Additional expansion begins this year.

Eventually, all three systems will be linked together. Actually, the gaps to be bridged total only about three miles. The Kingsbury system has extended through Stateline and well through Bijou, coming within about one mile of the Al Tahoe system, which is about four miles from the Tahoe Valley plant.

Both the South Tahoe Valley Gas Co. and the south shore business community realize that piped gas service will play an important

part in the progress of this year-around playground. The fledgling utility is fully aware of the responsibility it has—both as a member of the community and as a member of the LPG industry. It will be interesting to watch the development of the utility member of the Pacific Delta group.

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE NEWS, 198 S. Alvarado St., Los Angeles 57, Cal.



Headline attraction Giselle MacKenzie posed for a turn on shot when LPG was brought into Harrah's famous restaurant.



Chrome-plated piping, at which cook points, kept LPG flowing to Harrah's kitchen when neighboring electrical kitchens quit during storm.

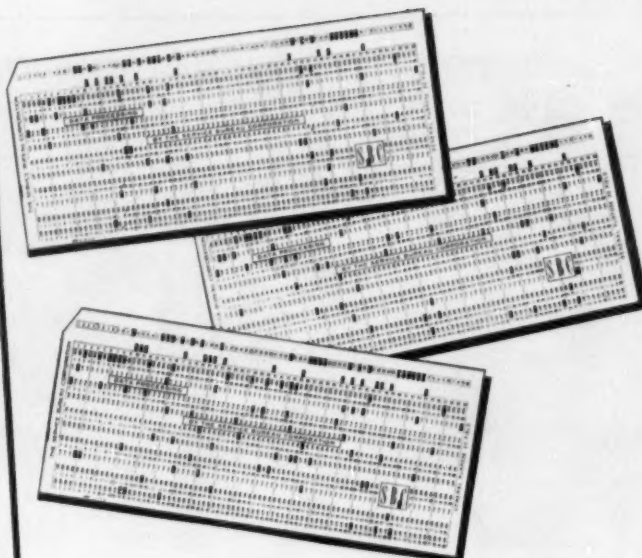
BUTANE-PROPANE News
1345 Sixth Avenue Street, Los Angeles 42, California • Station F4327
A CHILTON PUBLICATION

Your help in bringing our BPN Census of the LPG industry up to date would be very much appreciated. You can help by supplying the few facts asked for below. Where we already have any of the information, we have filled it in. We'd like you to correct it if necessary, and to fill in the blank spaces. This information will be kept in complete confidence. It is strictly for our use as a compiling industry statistic, and in guiding our editorial and circulation coverage of the industry. A postage-free envelope is enclosed for your use.

Sincerely yours,
Gilbert Bowman
MANAGER, DEPARTMENT

1. Please print the correct name and headquarters address of your company, including the COUNTRY if the above address is foreign; you may add "branch" and "co." in the blanks.

Company Name _____ Address _____
City _____ State _____
2. How much bulk LPG storage does your company have? (If quantity included, give)
3. About how many LPG customers does your company have? (If quantity included, give)
4. Of these, how many are on tank service? _____ If how many (if number included, give)
5. How many gallons of LPG did your company sell last year? _____ (If quantity included, give)
6. Does your company sell appliances? Yes or No _____
7. How many gallons or pounds of business does your company have? _____
Remarks _____
Signature _____



When you receive the form at left, please fill it in and return it promptly in the postage-paid envelope that will be with it. It will take you only a few minutes and will eventually do you a great deal of good. The data will be stored on the IBM cards shown above. Note that no names or addresses appear—just holes!

LPG industry image begins to emerge in 1961 BPN Census

GILBERT BOWMAN • Promotion Manager

ALL MAJOR INDUSTRIES provide considerable statistical information about themselves, and for very good business reasons. Such information enables companies to keep up with what's going on in their own industry, keeps the world at large constantly aware of the importance of the industry in the general economy, and maintains good public and political relations.

Industry statistics are not possible, of course, until companies within the industry are willing to provide basic data on their own operations. These data are usually given in confidence to some trustworthy central source, which takes over the job of compiling and organizing the data into composite form. This protects the individual company but yields important facts for publication and reference.

This central source may be the U. S. government, or a trade association, or a leading industry publication. The government considers such information so important to the business and financial communities that it annually spends some \$35 million (over and above the cost of the major periodic census) in compiling and publishing business and industrial statistics.

Many trade associations, also, spend considerable money and do a good job of compiling and publishing statistics about the industries they serve; but trade

associations are often handicapped by inability to get the figures of non-members, who may be quite numerous.

This opens the door for trade publications to step in and take up the work, if they have the inclination and can stand the expense. Indeed a trade publication that is widely circulated and read in all segments of its industry is in an excellent position to gather industry facts and figures and to organize and publish them. Several of the Chilton magazines, in addition to BPN, maintain censuses of the industries they serve—notably "The Iron Age," "Hardware Age," "Automotive Industries," and "Electronic Industries."

The liquefied petroleum gas industry, unfortunately, is one of those industries about which too little is known for its own good.

BUTANE-PROPANE News is undertaking to remedy this situation—with the help and cooperation of its readers. BPN has maintained a private census of dealers by type and size since the end of World War II. This dealer record is now being made the basis of a new census mailing, much of which is already completed and partially tabulated. Some 12,000 bulk plant dealers and large bottled gas dealers have already received or will soon receive the census form illustrated on these pages.



Here you see the IBM keypunch operator coding the information from the census forms on to IBM cards. All IBM operations are performed at Service Bureau Corporation, a wholly-owned subsidiary of IBM.



Publisher Frank Chapman and Editor Bill Clark have stopped the high-speed IBM printer, to study a "readout" sheet coming through. Note again that no names or addresses appear—just figures!

As you can see, the few questions asked are basic, simple, and easily answered. Replies, of course, are held in strict confidence. They are used only in compiling composite totals that reveal nothing about any individual dealer's operation, but do provide important statistical information about the industry as a whole. Replies are being put on IBM cards by Service

Bureau Corporation, an IBM subsidiary, for faster computation and reference. When the job is completed—which we hope, with your cooperation, will be by late spring or early summer—we shall be able to publish composite facts and figures that should be a good start toward building increased respect and recognition for the LPG industry.

Even these few questions, widely answered and properly compiled and interpreted, will provide, on a county-by-county basis, such information as the number of people using L. P. gas (a figure that has never been established); the number and type of dealers serving these customers; the relation in any given area between tank gas and cylinder gas usage; the volume of dealer storage of LPG in any given area; and so on. Dealers will be able to do some calculating, for themselves, of the proportion of LPG business they are getting in their areas, and the possibilities of expansion.

Some of the far-reaching benefits that will accrue to LPG dealers from publication of these basic industry facts are easily foreseen. For example:

Financing has always been a problem in the LPG industry—largely because not enough basic facts about the industry and its growth were available to interest and impress bankers and financing institutions. The BPN Census figures will supply some of those facts.

Subsidized electrical competition is another major problem of the industry. Politicians and the public are well aware of the importance of electricity, but hardly aware at all of the importance of L. P. gas. A tremendous number of our citizens haven't the faintest idea what L. P. gas is or does—and before you can interest citizens in a question of fair play for an industry, you must first make them aware of that industry and its importance to the millions of people who depend on it. Statistics about the industry, well publicized, are virtually the only means of doing this.

More facts and figures about the industry and its dimensions as a market will spur manufacturers into spending more money on research and development of new and improved products for the industry, and draw more manufacturers into the industry as suppliers. The type and number of manufacturers who supply an industry is one potent measure of its importance.

Is all this effort worth while? We think so. In the beginning, we intended only to up-date our BPN Census and compile statistics to guide us in our circulation and editorial coverage of the industry. The response is such that we now see in this new BPN Census a potential source of the best basic statistics the LPG industry has ever had; and we are prepared to push the program as far as you readers will help us to push it.

If you agree with us on the importance of compiling such statistics, we urge you to join with us in this effort to build stature and prestige for your industry, by filling in and mailing the BPN Census form as soon as it reaches you.

East Ohio Gas' co-op plan spurs dealers' selling efforts

A generous lost-customer reimbursement program is proving a big help in blocking organized raids by the "total electric living" forces, and stimulating stronger selling in areas that should be all-LPG today, all-natural gas tomorrow



East Ohio Gas Co.'s William H. Harper is an ex-LPG man who has a keen appreciation of the problems of the dealer as well as his importance to the gas utility.

A BPN Staff Report

FOR A COMPANY THAT HAS SNATCHED AWAY a 1½-million-gal. annual load from him over the past five years, East Ohio Gas Co., Cleveland, stands pretty high right now with LPG dealer Forrest Fram.

"We got all we could have asked for from East Ohio," says Fram, in appraising the utility-dealer co-operating program put into effect last June.

Fram is just one of 38 dealers involved in the program, but he's in a good position to speak for the entire group. For one thing, as president of Framgas, headquartered in Chagrin Falls, some 20 miles east of Cleveland, he is one of Ohio's most progressive independent dealers. For another, he's been about as hard hit as anyone by the inexorable march of natural gas into suburbia. In just one year, the Cleveland utility extended its mains and took over a 750,000-gal.-per-year business in the town of Solon. And now, East Ohio is approaching Fram's own stronghold of Chagrin Falls.

But for all his troubles, Fram still sees a silver lining in the dark clouds that hover over his well-established business. In the new cooperative program, he finds much more than a crutch to keep his business from tottering while the conversions advance. He sees some real, positive benefits that actually make the job of his salesmen easier, and that help to build good loads for him.

The East Ohio plan is simple and straightforward: The company reimburses dealers for every customer lost to natural gas. In this respect, the plan is not unique but it is more liberal than most.

In a letter to all dealers located in East Ohio's service area, General Sales Manager John S. McEl-

the quality tells... the quality sells

new **JANITROL**

WIN-SUM-MATIC

**year 'round
air conditioner**



COMPACT...

Fits in as little as 3 $\frac{3}{4}$ square feet!
Features Dura-Tube Gas Heating Heart
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WESTERN UNION

HARRY C. GURNEY, General Sales Manager,
Janitrol Heating and Air Conditioning,
A Division of Midland-Ross Corporation,
Columbus 16, Ohio

RUSH ME FACTS ON JANITROL'S
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Name

Address

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Paced by the exclusive *Janitrol Select Dealer Plan* that gives you action in place of promises... adds vital new depth and dimension to your *Growth and Profit Future!*

check-out the highlights!

- 1 **The Finest Factory Technical Training Program** in the industry... tuition-free for Select Dealers!
- 2 **Personalized Dealer Management Services**... expert guidance in all phases of management, including sales training, recruiting, accounting, advertising, and engineering available to Select Dealers at no cost!
- 3 **Dealer Information Service**... authoritative newsletters, bulletins and periodicals keep Select Dealers up to date on latest developments in equipment, applications, service and merchandising slants!
- 4 **Regular Regional Meetings**... bring Select Dealers and Janitrol personnel together for stimulating discussions of merchandising, management, engineering and other subjects pertinent to dealer growth and profit!
- 5 **Liberal Dealer Stocking Plans**... assure the equipment required by Select Dealers will be on hand when needed.
- 6 **Free Retail Salesman Training and Aids**... Janitrol helps recruit and train salesmen for Select Dealers. Provides proven, sales-clinching presentation manuals for cooling, heating and new home builder selling!
- 7 **Protected Territories**... Select Dealer Franchises in any market area are limited. No "free-wheeling" franchising to choke off profits!
- 8 **Powerful Planned Co-op Advertising**... a year-round program of hard-hitting local level advertising and promotion prepared for you by experts!
- 9 **Powerful National Advertising**... to create demand in your own local market for Janitrol products—back up your sales and promotion activities!
- 10 **Promotion Package Worth \$300.00**... for newly franchised Select Dealers. Includes illuminated signs, floor and window displays, colorful literature, demonstration kits, etc.
- 11 **Yellow Page Telephone Listings**... reserved for you, as a Select Dealer, in your own local phone book under the JANITROL headings.
- 12 **Competitive Pricing**... made possible by famous Janitrol advanced engineering and new automated production lines. Puts Select Dealers in the driver's seat with quality at low cost!
- 13 **The Top Brand Name**... Janitrol leadership in design and quality is nationally recognized and acclaimed. Over two million Janitrol units have been sold!
- 14 **A Great Line... A Complete Line** featuring the Win-Sum-Matic, finest of a fine line!



The Janitrol Win-Sum-Matic Year 'Round conditioner brings you years-ahead features and performance... plus the industry's greatest selection of quality accessories for custom-designed comfort systems to boost your profits! Built for time-saving installation and backed by a 20-year warranty on the heat exchanger. Operates year 'round with the quiet thriftiness of clean gas heat and powerful air cooling. New slim-trim styling; warm two-tone colors; and exclusive design features packed with sales appeal!

The all-new Series 52 condensing unit is featured as the cooling system for the Win-Sum-Matic. Attractively styled, weatherproof and safe. Top-mounted, upflow fan boosts performance... operates with outside temperature to 125°F.

Other quality products in Janitrol's full line include Oil and Gas-Fired furnaces in horizontal, vertical and counter-flow models... plus a special line of competitive equipment built for the high volume, new home market! In cooling, Janitrol covers the residential and commercial markets with economical, self-contained units; add-on, modernization units and a completely new series of air-cooled condensing units. Janitrol Unit heaters, duct furnaces and schoolroom conditioners blanket the industrial heating market with a wide selection of models from 30,000 up to 1,750,000 Btu inputs.

You owe it to yourself to get the full story on Janitrol's full line... plus the fabulous Janitrol SELECT DEALER PLAN! WIRE COLLECT RIGHT AWAY!

FOR SOARING PROFITS IN THE SIXTIES, JOIN THE JANITROL SELECT DEALER GROUP! WIRE COLLECT FOR COMPLETE INFORMATION, ABSOLUTELY WITHOUT OBLIGATION...

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HEATING AND AIR CONDITIONING

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East Ohio co-op plan

wain last May set forth the elements of the plan as follows:

"The plan will become effective with all installations made by you after June 1, 1960. The basic requirements for an installation to qualify under the plan are that the gas piping within the confines of the structure be installed according to East Ohio Gas Co. specifications, and that all installations be registered with us in our operating divisions on forms which we will provide.

"If the basic requirements are met, the L.P. gas dealer who originally filed a customer card with East Ohio will be reimbursed on the following schedule. . . ."

The reimbursement schedule is as follows:

Gas central heating plant	\$50
Gas water heating unit	35
Gas range	15
Gas clothes dryer	10
Gas incinerator	10
Gas refrigerator	10
Gas light	10
Maximum reimbursement	140

In order that dealers might be able to comply with "East Ohio piping specifications," the utility has supplied each of them with a complete set of such specifications. As company officials explain it, the most significant provision is that black iron pipe must be used in customer services.

As further protection for those installations made before June 1, East Ohio agreed to pay the dealer a flat fee of \$15 "for every LPG customer converted to natural gas service, regardless of location or installation piping. . . ."

"This will at least get the dealer out 'whole,'" says William H. Harper, sales promotion manager for East Ohio.

Customers qualifying under the "to-specifications" plan are registered by means of a card which, on one side, lists name, address, date, and dealer name and address. On the reverse side is a list of "appliances installed," with matching check boxes.

The popularity of the plan is attested to by the fact that in the first four months, East Ohio had received 200 registrations. Fram alone sent in close to 50. If all

these are eventually converted, the Framgas till will ring up many hundreds of dollars he would not have received had the unity program not been put into effect.

As Harper points out, dealers will find the plan eases the pain of the loss of complete tracts. A 40- or 50-home unit, while representing a sizeable load loss for a dealer, would nevertheless have real asset value. The reimbursement would help pay for some strong sales development work in other, undeveloped markets areas.

This aspect is, of course, highly important to East Ohio. Harper describes the purpose of the program succinctly: "It's to encourage the L.P. gas dealer to sell gas, first, and gas appliances in areas which otherwise would automatically go to electricity or oil."

It can be seen, judging from this statement, that the utility is keenly aware of the important role dealers can play in holding the market. The danger is in allowing to develop around the utility's market perimeter what Bruce McCandless of Milwaukee Gas Light (and head of the Gas Unity Committee) aptly describes as "an inert ring." Dealers are in a position to encourage this development; by refusing to sell along the periphery, they are helping the electric utility build a ring in the suburban areas. This bars gas from these areas permanently.

Most dealers recognize the danger such a situation holds for them. There is nothing to prevent the electric utility from extending its 220 service lines into the dealers' own markets, and they know it.

Fram and his fellow dealers in the Cleveland, Youngstown, Warren, Akron, Canton, and Ashtabula markets can no doubt be grateful to have such a sympathetic ear as East Ohio's. Bill Harper is an ex-L.P. gas man, having spent a total of 10 years with Bastian-Blessing and A. O. Smith. With B-B, he was at one time district manager in a seven-state region which included Tennessee, Illinois, Michigan, Ohio, West Virginia, Pennsylvania, and Kentucky. He joined East Ohio in early 1960.

"We need the dealers now," declares Harper. "It will take an investment of millions of dollars and

years of building to acquire all the customers who are now ready for natural gas.

"We must encourage the dealer in every way we can to pioneer along the periphery of our system. He must do much more than just a passive job of taking and holding load. He should actively push gas heating, and should get out and work closely with builders."

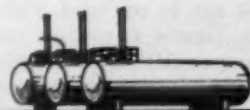
Obviously, without adequate reimbursement to provide the nudge, dealers are reluctant to open up multiple new-home markets, which are sure to be only temporary.

Fram believes the plan is a real help in his sales work. He feels no qualms about paying a full commission to his salesmen when they sell in an area that threatens to fall to natural gas. He once was compelled to discourage such sales, because they simply didn't pay out.

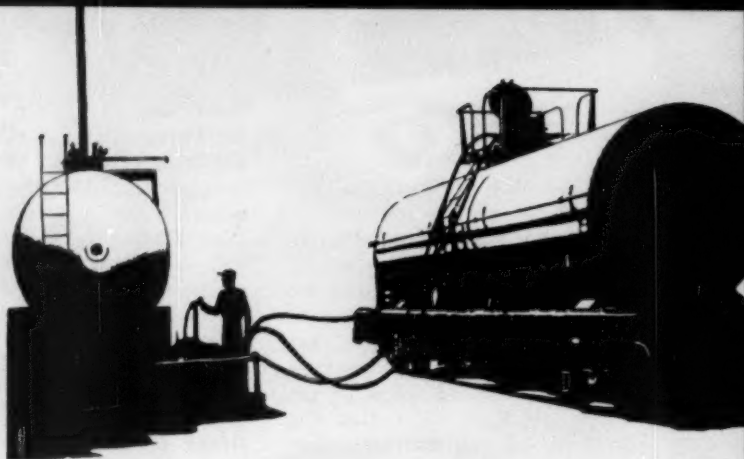
Now he encourages them. He also advises his men to stress the fact that "natural gas is coming" in their sales presentations. It helps close the sale, he has found.

Fram and at least a majority of his fellow dealers see, as does East Ohio, that cooperation is a must. They have a formidable competitor in the electric industry, represented locally by Cleveland Electric Illuminating, Ohio Power, and Ohio Edison. These utilities have organized special task forces whose job it is to try to convert LPG users to electricity. Last summer, salesmen and home service girls toured the countryside, looking for LPG installations that they might switch over to electricity. Personal sales talks were made. Free 220-volt wiring and special package prices on appliances were offered as an inducement. They worked closely with builders beyond the mains. One development was even given the name "Electric City," in return, of course, for ample allowances on wiring and appliances.

This sort of activity hits the dealer today, the gas utility tomorrow. Each needs the other's help, and each knows it.



Adapted from
a manual
published by
Phillips Petroleum Co.



The proper method of unloading LPG tank cars

L. P. GAS TANK CARS range in size from approximately 10,000 gal. to 30,000 gal. capacity and are built in accordance with Interstate Commerce Commission specifications. In the older cars, the shells or tanks are insulated with a four-in. layer of suitable insulating material which is encased in a steel cover. Some of the newer cars, however, are not insulated.

The cars are equipped with thermometer wells but not with thermometers. The unloader must use his own thermometer which should be equipped with a small chain so it can be removed from the car.

LPG tank cars have no bottom outlets. All connections are made through the dome cover plate on the top of the car and all these fittings are shown in the drawing on p. 47. Let's take a closer look at these fittings and their functions. Note that the paragraph letters below correspond to those on the drawing:

A. Liquid Eduction Valve — Each tank car is equipped with two 2-in. liquid eduction valves through which it is unloaded. A liquid eduction pipe extends from each valve to the bottom of

the tank inside the car. Steel plugs provided for that purpose must be tightened in the valve outlet at all times, except when the car is actually being unloaded.

B. Vapor Valve—This 2-in. valve is used as an equalizing connection between the tank car and the storage, or as a repressuring connection. The steel plug provided for that purpose must be in the vapor outlet except when the car is actually being unloaded.

C. Relief Valve—This is a spring-loaded, resilient seat valve designed to relieve excessive tank pressure.

D. Gauging Device—The slip tube gauging device is used to determine the tank car outage—the volume above the liquid level in the car. In using it, proceed as follows:

Carefully remove the tank car gauging device protective cover. Push down on the gauge rod so the gauge rod lock or sliding bar can slide back, permitting the rod to be raised. (Never lean over a gauge rod as the car pressure

can cause it to come up with considerable force.) If the rod sticks and cannot be raised easily, loosen the packing gland slightly. A twisting motion on the rod is usually more effective than a straight pull. Take care not to bend the rod. *Never use a pipe wrench or hammer on any part of the gauging device.*

Raise the rod carefully. Slowly open the valve or petcock at the upper end of the rod to avoid slamming the excess flow valve in the lower end. If liquid comes out of the rod vent valve, slowly raise the rod until the liquid flow changes to vapor.

With the gauge rod valve open and gas flowing from it, gradually lower the rod until the gas flow changes to liquid. Slowly raise the rod approximately $\frac{1}{4}$ in. at a time until gas once more flows from the rod. Read the rod marking opposite the top surface of the gauge pointer and record this reading. If lowering the rod $\frac{1}{4}$ in. from this position does not change the flow from gas

back to liquid, the reading was in error and the car must be regauged.

When gauging is completed, close the gauge rod valve, lower the rod to its lowest position, and reset the rod lock. If necessary, carefully tighten the rod packing nut to stop leakage through the packing gland. Be sure the gauge cover gasket is located properly and carefully replace the gauge protective cover.

E. Liquid Eduction Valve—See A above.

F. Sample Valve.—Also called the bottom drain valve, it is used to tell when the car is empty of liquid. Inside the car a small diameter pipe extends to the very bottom of the car.

G. Thermometer Well—This is an open tube closed at the bottom end which extends well past the center of the car. It houses the thermometer used before unloading to measure the temperature of the liquid in the car. Temperature measurements are made in this way:

Remove the plugged half union from the thermometer well. Lower the tank car thermometer to the bottom of the well, where it should be covered with a non-freezing liquid, kerosene. If the thermometer is not completely covered when on the bottom of the well, add enough kerosene to cover it (approximately one pint). *Never put water in the well.* The thermometer must remain in the well at least 10 minutes before being read. When ready, raise the thermometer quickly and read it at once. Do not remove the thermometer any farther than necessary. Record the temperature in writing. Always recheck this reading. And remember that the thermometer must be tested periodically to insure its accuracy. When temperature readings are completed, remove the thermometer and replace the plugged half union on the thermometer well.

H. Excess Flow Valves—The gauge rod, sample line, both liquid eduction lines, and the vapor line are all equipped with excess flow

valves for your protection. If, at any time during the unloading of a car, any of these excess flow valves should slam shut, they can be opened by closing the shut-off valve in that line for a few minutes. The excess flow valve will make an audible click when it comes open. Then slowly reopen the control valve. *Liquid eduction valves must be fully open or fully closed at all times or the excess flow valves in these lines cannot function properly. Do not use these valves for controlling flow rate.*

Preparing to Unload

Interstate Commerce Commission regulations require that before any connections are made to the car, caution signs must be placed on the track or car to give necessary warning to persons approaching from the open end of the siding. The signs must remain in place until the car is unloaded and disconnected from the unloading connections. They must be of metal and at least 12 x 15 in. in size. The message must be either "STOP — TANK CARS CONNECTED" or "STOP — MEN AT WORK." The word "STOP" must be at least 2-in. high. *The letters must be white on a blue background.*

Brakes must be set and wheels blocked on all cars being unloaded.

Break the car seal, remove the lock pin, and carefully lift the dome cover. Carefully measure the tank car outage and determine the temperature of the liquid in the car. *While checking the outage, smell the escaping gas to confirm that it is odorized. Record this confirmation in the space provided on the tank car bills of lading.*

Refer to the proper outage tables (furnished by your supplier) for the car being unloaded. Turn to the proper table and opposite the outage gauge reading you have just determined for this car, read the outage in gallons. (If you do not have these tables, contact your supplier and ask him to furnish them for all the cars he may ship to you.)

Subtract this outage in gallons from the tank car shell capacity which is shown in the outage table index and is also stenciled on the tank car. The result is the actual liquid gallons in the car at the

measured temperature. This is called the "gross gallons" in the car.

To find the equivalent net gallons at 60 deg. F., the gross gallons must be multiplied by a volume correction factor. These volume correction factors are found in Table 1 of NGAA Publication 2142-57, "NGAA Standard Factors for Volume Correction and Specific Gravity Conversion of Liquefied Petroleum Gases." (An abridged reproduction is in the "Handbook, Butane-Propane Gases," published by BPN. A copy of the tables can be purchased from the NGAA office in Tulsa. In the vertical column under the specific gravity bracket which includes the specific gravity of the product in the tank car (shown on the notice of shipment you received on this car) and opposite the liquid temperature you just measured and recorded, you will find the volume correction factor for this shipment. Multiply this correction factor by the "gross gallons" determined in the previous paragraph to get the net gallons at 60 deg. F.

The net gallons at 60 deg. F. in the car should closely approximate the net gallons shown on the notice of shipment. Occasional overages generally equal or exceed occasional shortages. *In the event of a major shortage, for which a claim may be entered, DO NOT UNLOAD THE CAR.* Recheck the gauging and the calculations to verify the shortage, then immediately contact your supplier.

Unloading by Compressor

The compressor creates a pressure differential between the storage tank and the tank car by withdrawing vapors from the storage tank and forcing them into the vapor space of the tank car. This lowers the storage tank pressure and increases the tank car pressure, forcing the liquid out of the tank car and to the storage tank. (Note: Oil lubricated gas compressors should be equipped with an oil mist extractor on the compressor discharge to prevent fuel contamination with lubricating oil.)

For proper unloading, the tank car pressure should be somewhere between 5 and 10 psig above the storage tank pressure, depending upon the distance between the tank

Unloading LPG tank cars

car and the storage tank and the design of the piping system. If the pressure difference is too low, unloading will be slow. If the pressure difference is too high, the excess flow valves in the tank car liquid eduction lines may close and unloading will stop. Normally the unloading rate should be about 2500-3000 gal./hr. The 5 to 10 psig pressure differential is based on the tank car and the storage tanks being located at approximately the same level. If the storage tanks are much higher, the pressure differential will have to be increased about 1 psig for each 4-ft difference in elevation.

The actual unloading should proceed in this step-by-step fashion:

- A. Carefully remove the plugs in the liquid eduction valves and in the vapor valve in the tank car.
- B. Connect the liquid hoses to the tank car liquid eduction valves and the vapor hose to the tank car vapor valve.
- C. Open both liquid eduction valves slowly but completely. Then open all other valves in the liquid line working from the tank car to the storage tank. Open the storage tank filling valve slowly. Be careful not to open this valve too far if the tank car pressure is above the storage tank pressure or the tank car excess flow valve may slam.
- D. If the tank car pressure is higher than that of the storage tank, do not open the valves in the vapor line or operate the compressor. When the rate of liquid flow drops to an unsatisfactory rate with the storage tank filling valve wide open, open the vapor valves between the tank car and the storage tank. Make sure the compressor four-way plug cock is in the position that allows the compressor to draw vapor from the storage tank and force it into the tank car. Then, start the compressor. With the tank car held at a pressure 5-10 psig above the storage tank pressure, the car should be emptied of liquid in three to five hours. A flow of gas instead of liquid through the sight flow glass in the unloading line indi-

cates that the car is empty of liquid. Check this by opening the sample valve on the tank car.

- E. After the tank car is emptied of all liquid, the valves in the liquid line should be closed, starting at the storage tank and working to the tank car. If you now desire to remove the vapors from the tank car, reverse the four-way plug cock at the compressor so the compressor will draw vapor from the tank car and force it to the storage tank. When the tank car pressure is reduced to about 25 psig, stop the compressor and close all valves in the vapor line.
- F. After bleeding off the pressure in the hoses, disconnect both the liquid and the vapor hose assemblies. Replace all the plugs in the tank car valves and the unloading fittings. Lower the dome cover carefully and lock it in place with the locking pin. Reverse the placards on the tank car to indicate that the car is empty. Remove the "Tank Car Connected" sign from the open end of the siding and furnish the railroad with return billing instructions.

Unloading by Pump

A tank car can be unloaded with a liquid pump but it is impossible to remove any of the vapors. For this and other reasons, the compressor is almost always used. The basic procedure for unloading by pump is the same as that for using the compressor—except that the pump is connected in the liquid line from the tank car to the storage tank.

The vapor line between the storage tank and the tank car must be large enough to insure that the tank car pressure never drops appreciably below that of the storage tank. Otherwise, the pump may vapor lock and unloading will be difficult, if not impossible.

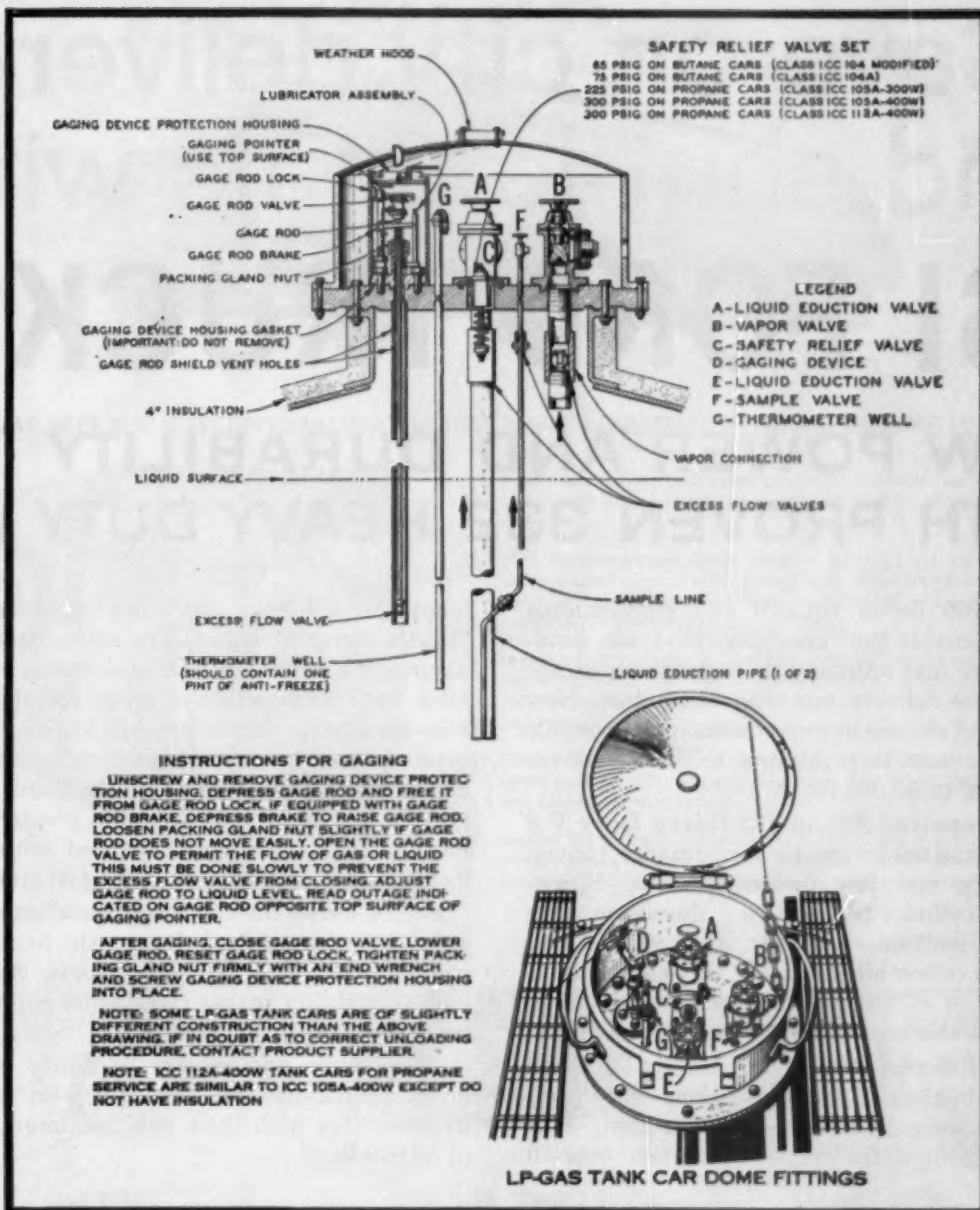
If, at the start of unloading, the tank car pressure is above the storage tank pressure, do not open the valves in the vapor line. The higher tank car pressure will then help the pump and unloading will be faster. Open the vapor valves only when the storage tank pressure is equal to the tank car pressure.

Unloading by Gas Pressure

Tank cars should never be unloaded by gas pressure with non-condensable gases if a liquid pump or gas compressor can be used. At best, gas pressuring leaves the car filled with non-condensable gas which contaminates the next load and makes loading the car very difficult. *If gas pressuring must be used, the gas must be clean, dry, and non-corrosive.*

The actual unloading should proceed in this step-by-step fashion:

- A. Carefully remove the plugs in the liquid eduction valves and in the tank car vapor valve.
- B. Connect the liquid hoses to the tank car liquid eduction valves.
- C. Connect the repressuring hose to the tank car vapor valve and to the repressuring gas supply line. *This line must have an approved check valve to prevent flow of gas from the tank car into the supply system.*
- D. Open both tank car liquid eduction valves slowly but completely. Then open all the other valves in the liquid line, working from the tank car to the storage tank. Open the storage tank filling valve slowly. Be careful not to open this valve too far if the tank car pressure is above the storage tank pressure—or the tank car excess flow valves may slam.
- E. If the tank car pressure is higher than the storage tank pressure, do not open the tank car vapor valve or the valves in the repressuring gas supply line. When the liquid flow drops to an unsatisfactory rate with the storage tank fill valve wide open, open the tank car vapor valve and the repressuring gas supply valve. Maintain the tank car pressure 5-10 lb above the storage tank pressure by controlling the repressuring gas supply to the tank car.
- F. A flow of gas instead of liquid through the sight flow glass in the unloading line indicates that the tank car is empty. This should be checked by opening the tank car sample valve. When the tank car is empty, shut off the repressuring gas supply. Then close all valves in the liquid line working from the storage



tank to the tank car. Close all the valves on the tank car. After bleeding the pressure from all the hoses, disconnect them. Replace the dome cover carefully and lock it in place with the locking pin. Reverse the placards on the tank car to show that it is empty. Remove the "Tank Car Connected" sign from the open end of the siding and furnish the railroad with return billing instructions.

Remember:

Use only Class 1, Group D (explosion proof) lights, switches, mo-

tors and other electrical appliances in the vicinity of tank cars being unloaded.

Be careful when removing plugs or caps on tank car connections. Shut-off valves can leak or they may not be closed tightly. This will cause pressure to build up behind the plugs or caps.

Do not place your head or body directly over the tank car gauging device when releasing the hold down latch—high pressure may force the slip tube up rapidly and with considerable force.

Be sure all loading connections are tight and that the purpose of

each valve or fitting is understood before operating.

Never tamper with safety relief valves on tank cars.

Never place your head or face over the relief valve opening.

Tag—with a "bad order" tag—any parts or fittings inside the tank car dome that are defective or work improperly. On the back side of the yellow tag, write a brief description of the trouble encountered. Then fasten the tag securely to the part causing the trouble so it will be found and repaired before the car is loaded again. ■

Save on city delivery and shuttle costs with '61 FORD TRUCKS

NEW POWER AND DURABILITY WITH PROVEN 332 HEAVY DUTY V-8

Ford's 750 Series tilt-cab and conventional models provide the versatility, payloads, hauling power and economy to make them exceptional city delivery and shuttle tractors. New power and chassis improvements make possible a big increase in maximum GCW . . . from 42,000 lb. to 50,000 lb.

The improved 200-hp 332 Heavy Duty V-8 is now standard for greater performance, proven durability and low operating costs. Stress-relieved cylinder heads, 4-ring aluminum alloy pistons, sodium-cooled exhaust valves and tungsten-cobalt alloy exhaust valve seat inserts are typical of the heavy-duty features to be found on this engine for greater durability.

Ford F-Series models now have a 102-inch bumper-to-back-of-cab dimension, with front axle set only 28 inches from bumper. This permits longer trailers within given over-all

length and bigger payloads—especially in "bridge formula" states. The new independent mounting system for cab and radiator separates both from adjacent sheet metal assemblies for greater durability. And radius rod-leaf type rear springs provide better axle alignment and longer spring life. The electrical wiring system has been improved for greater reliability. Chassis wiring is fastened within the frame web, away from mud, ice and snow.

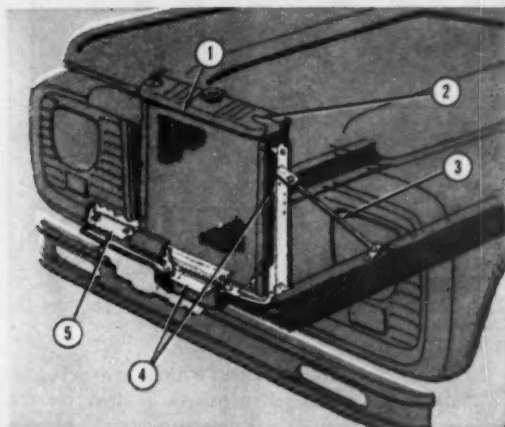
Ford C-Series tilt-cab design distributes more weight to the set-back front axle to increase payloads as much as 1,000 pounds. And fine maneuverability makes these units popular for congested traffic city runs.

These units add greater flexibility to your operation because they can "pinch-hit" as line-haul tractors with their new maximum GCW of 50,000 lb.

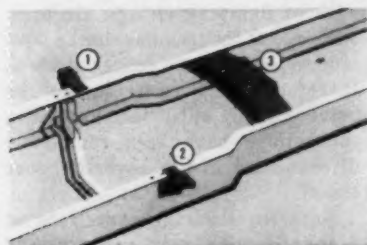




SAVE WITH NEW HEAVY-DUTY CONSTRUCTION THAT DOUBLES CAB, SHEET METAL AND RADIATOR LIFE

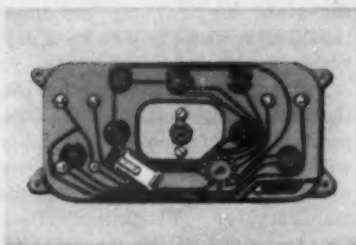


- ① **Ford's exclusive "lock-seam" radiator construction** doubles the solder area at key seams for greatly increased strength and longer radiator life.
- ② **42% heavier-gauge sheet metal** in fenders, hood, cab floor pan and toeboard gives greater strength and durability. Heavier-gauge metal on radiator tanks and header provides more strength, greater resistance to vibration, jolts and corrosion.
- ③ **Independent radiator mountings**, separate from front end sheet metal, mean that road shocks and shakes are not transmitted to the radiator through sheet metal. Tanks, tubes and connections last longer, require less maintenance.
- ④ **"Horse collar" mounting**, seated on resilient rubber at the center of frame cross member, soaks up any frame flexing . . . cuts wear and tear on entire cooling system.
- ⑤ **Fender mountings**, independent of both cab and radiator, eliminate stress transfers for greatly increased fender life. And only 8 bolts per fender allow easy removal for rapid service accessibility to engine area.



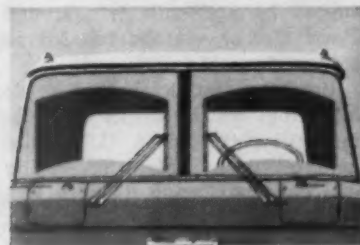
SAVE WITH NEW 3-POINT CAB MOUNTING

Two outboard front mounts plus a centered "twin" rear mount provide a triangular system that holds the cab stationary while allowing the frame to move independently. This reduces strains for greater cab durability.



SAVE WITH PRINTED ELECTRICAL CIRCUITS

Ford's printed wiring circuit is standard on all Tilt Cab models. This system, designed for long life, eliminates the "under dash" tangle of wires, minimizes shorts and is color-coded to provide for easier repairs.



SAVE WITH NEW ACCESSIBILITY

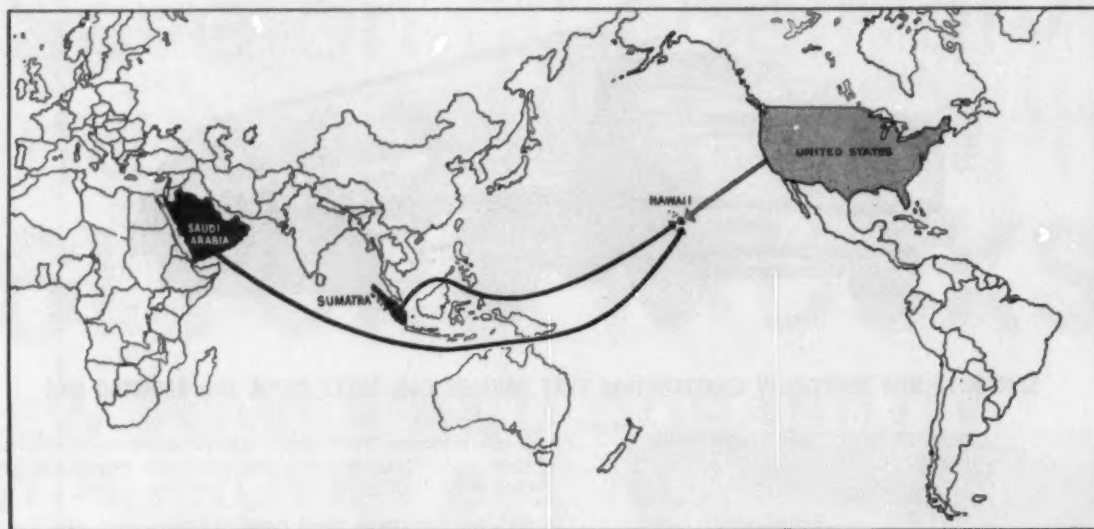
New Parallel Action wipers clear a bigger windshield area. And convenient access panels to the wiper motors cut service time and expense. These dependable wipers are available on all Tilt Cab models.

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New source for Hawaii's LPG: Asian oil

A BPN Exclusive

LIKE MANY OTHER THINGS IN HAWAII, LPG now has a romantic background: A 7000-mile boat ride from the Far East or Near East, capped by a 26-mile trip around Pearl Harbor via the latest type transport.

Until late last October, all crude oil (from which the LPG is obtained) originated in U.S. mainland oil fields. Final processing was done by Pacific Refiners Ltd. at Kapalama, a Honolulu suburb. The refinery is located just across the road from the LPG distributor in the islands, Isle Gas, a Honolulu Gas Co. subsidiary. A short underground pipeline delivered the product to the Isle Gas yard.

But a new Standard Oil refinery has been built at Barber's Point, on the southwest corner of the Island of Oahu, and now this facility has been made the sole source of LPG for Isle Gas. On Oct. 26, a tanker of crude arrived at Barber's Point from Sumatra, marking the capture of the Hawaiian market by Asian petroleum products. Since then, crude has come from both Sumatra and Arabia. The latter is 7000 miles away.

Within a week of its arrival,

the Asian product was traveling to the Isle Gas yard at Kapalama aboard the newest and biggest transport in Hawaii. Since then, the giant highway rig has made the 52-mile round trip twice a day, six days a week.

Purchased especially for this job, the new truck* combines high capacity and high maneuverability with light weight. At 10,500-wg capacity, it was reported by the manufacturer, Mississippi Tank Co., to be one of the largest LPG transports ever sent overseas. It was shipped from Mobile, 4500 miles away, through the Panama Canal.

The tank measures 55 ft long by 11 ft high. It was fabricated of T-1 steel, welded on automatic welding machines, with every joint being X-rayed. To augment the weight saving brought about by the use of T-1, the company made the tractor cab, frame, and transmission of aluminum.

The truck has a special safety device, a system combining compressed air brakes with automatic

safety brakes which are actuated whenever pressure is lost on the regular air brake system. An unloading connection cannot be made without dumping enough air pressure from the regular brake system to actuate the safety brakes; therefore the truck cannot be driven away until the unloading connections have been completely disconnected and a covering door closed.

Both the loading connections at Standard Oil's new refinery and the unloading connections at the Isle Gas yard are jointed steel pipe. Both operations are at a 200-gpm rate, although the refinery loads through a 2-in. pipe and the yard unloads through a 4-in. pipe.

Special unloading facilities installed by Isle Gas include two compressors and a deep-well-type centrifugal pump. Since centrifugal pumps must normally be designed for a zero suction-head pressure and be located as far below the liquid level as is practicable, Honolulu Gas sunk the pump 6 ft below ground level to insure some positive pressure to the inlet. The 200-gpm rate, incidentally, is at a 75-lb pressure differential. Most

* For a photo of the blimp being slung over the side of a freighter, see BPN for December, page 64.



...looking ahead

If you are scouting around for a more profitable operation it will pay you to look ahead and secure a Sid Richardson contract.

With a Sid Richardson supply contract you protect your business and your profits because . . .

We have no company-owned wholesale or retail outlets to compete with our customers.

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The tremendous new transport unloads at the Isle Gas yard in Kapalama, a Honolulu suburb. Compressors and a deep-well pump are part of the new unloading equipment at the yard.

Into five of these 30,000-gal. storage tanks goes the LPG hauled by the new transport. Both of these photos were made as the transport completed its first trip.



A reprint of this article can be obtained by writing on company letterhead to the Editor, Butane-Propane News, 198 South Alvarado St., Los Angeles 57, Calif.

transfers will be accomplished by the two Corken's compressors which transfer vapor from the five 30,000-gal storage tanks to the truck tank, building up a pressure differential sufficient to move the gas at 200 gpm.

Purchase of the new semi-trailer rig and the compressor pump equipment represents not only a procedural change, but also a facilities expansion. And expansions are definitely in order, for Isle Gas sales have been increasing at the rate of about 600,000 gal per year.

Three percentage figures significantly show the growth of Isle Gas sales over the last five years. In 1956, they accounted for 16 per cent of total company gas sales. By 1960, that figure had risen to 22 per cent. During the same period, Isle Gas customers increased 43 per cent from 8,153 to an estimated 11,649. Gas sales meanwhile were shooting up 70 per cent, from 2,631,000 gal to an estimated 4,481,000 gal.

Where and to whom is this gas sold? The division between LPG and manufactured gas territories gets quite involved, varying considerably from location to location. Generally, however, it follows the standard pattern of rural and urban areas.

One exception, and a big one, is the industrial market, 261 industrial customers using some 600,000 gal during 1960. Biggest single industrial customer is Castle & Cooke Terminals,* a ship loading and unloading firm that used 128,472 gal of Isle Gas in '60.

Biggest single customer, on the other hand, is a military housing project that used 162,783 gal during the year. Another big user, of an entirely different sort, is an orchard which consumed 27,674 gal in weed-burning.

Most usage is from cylinders, there being 2000 on Oahu, compared to only 60 bulk tanks.

* For a story on how the company uses LPG in its fork lift trucks see "LPG Saves Castle & Cooke \$421 per Forklift per Year," BPN, January 1959, page 87.

Most popular regulator in the industry

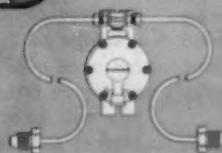
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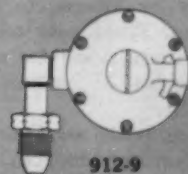
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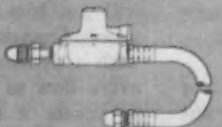
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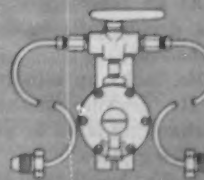
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912-10



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912-18



IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD... CHANCES ARE IT'S CONTROLLED BY...

FISHER GOVERNOR COMPANY Marshalltown, Iowa



SINCE 1880

• *Looking for a safety secret? The eyes have it!*



practicing for an accident!

A BPN Exclusive

IF YOU ARE LIKE 95 in every 100 U. S. drivers, you often need to stop quickly or swerve to escape an accident. These near misses prove you are practicing for an accident because you do not use your eyes correctly.

Seeing is the secret to safe driving. Years of study by safety experts have pointed this out so conclusively that they can give you a half-hour driving test, then predict with considerable certainty how many accidents you will have in the future. They know most accidents are caused by bad seeing habits.

Seven in ten daytime accidents result from three seeing errors that rarely occur at night:

- 1) At an intersection or driveway, a driver fails to see danger from the side;
- 2) He backs up blindly; or
- 3) He crowds another driver while changing lanes or pulling out of a parking place.

At night, headlights of oncoming cars warn drivers of these dangers. Nearly all night accidents are of three other types:

- 1) A car hits a pedestrian;
- 2) A car slows down and is hit from behind;
- 3) A driver mistakenly steers off the roadway or onto the wrong side of the road.

These accidents are unnecessary.

With correct seeing habits, you seldom make seeing errors and you snap out of them quickly. You can actually go five to ten years without once needing a tire-squeal stop to escape trouble! More important, you will have little chance of any kind of accident in your entire lifetime!

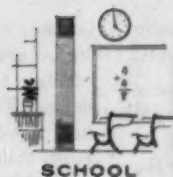
Unfortunately, every driver *thinks* he sees correctly. He may make repeated seeing errors and not know it. Most drivers blame a near miss or accident on bad luck or on the wrong moves of other people.

The fact is that—even with faulty seeing habits—any driver may go for long periods with no more than an occasional near-miss. But sooner or later these habits will get him into an accident. It usually comes when he is dealing with a distraction that makes him extra slow to see danger—or when he meets a driver or pedestrian who has similar faulty habits and is facing a distraction.

Most accidents occur under supposedly safe conditions because under these conditions a driver with faulty seeing habits is most likely to allow distractions to take his mind off driving. He is then driving by habit alone—and either his good habits will pay off or his bad habits will give him a nasty surprise.

Five common distractions, either individually or in combination, are usually present when a driver makes a wrong move in traffic. They are:

- 1) *Route problems:* Everyone travels a different route and many concentrate too much on how they will get to their destination. Over half of all accidents occur when drivers get too intent on a route problem and fail to see that they are blocking or crowding traffic. Usually, this happens when they are heading into or out of a parking place, attempting to turn at a particular corner, or looking for a sign or street address.
- 2) *Mental disturbances:* You look with your eyes but you see with your mind—and many things cause your mind to pay less attention than it should to what you see. You're liable to make seeing errors when hurry and worry or when you are bored, tired, not feeling well, or lost in personal thought. These are all common with the hurry habit—possibly the most frequent offense. Less common but just as dangerous as a mental disturbance is the alarm that a traffic conflict may arouse, causing you to set up a second



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How to drive safely

conflict by a blind swerve or a panic stop.

3) *Scenery:* This includes anything along the road that makes you curious and holds your eyes too long: an accident, a speeding ambulance or fire engine, a shapely feminine figure, a flashy car, road-side lights, etc.

4) *In-the-car disturbances:* Lack of seeing discipline will allow you to stare at a bee or fly that got into the car, light a cigaret or check the gas gauge at the wrong time, or turn your head too much to talk to passengers.

5) *Unfamiliar driving tasks:* City and rural driving, day and night driving, expressway and icy-road driving all require a familiarization period. Any time you drive under abnormal conditions, your normal habits can trap you. Among these abnormal conditions are: backing up (when most drivers fail to face the rear) and driving in another area or state, where unfamiliar signs and driving customs are liable to confuse.

While one or more of these five distractions usually is present when a driver sets up a traffic conflict, the real cause is failure to carry out the key seeing jobs of driving. In a moving vehicle, you do not have time to see everything along the road or to think about what to do in a tight spot. The trick is to do those things that will enable you to read the traffic picture in one quick glance and make automatic, correct decisions without thinking about them.

The five key seeing jobs of driving are:

- 1) Aim high in steering;
- 2) Get the big picture;
- 3) Keep your eyes moving;
- 4) Leave yourself an out; and
- 5) Make sure they see you.

All drivers do these five seeing jobs at least part of the time. But most take so long on each job that they seldom finish all five. And when a distraction comes along, they fail to do any of them for many seconds.

The five jobs must be continually practiced until they become habit.

Aim high in steering. Because a driver sits left of center in his vehicle, in most cases he tries to keep extra space on his right. He hugs the left edge of his lane, steering by watching a short distance ahead along the left edge of the lane. Occasionally, he may fix his eyes on an object near the right edge of the lane and veer far left to avoid it. Most head-on accidents on three-lane highways do not occur in the center lane, but in the far left lane. This is because the passing driver allows far too much space on his right. By looking low, he may not look far enough ahead to see potential danger or to keep himself in the proper lane. Sure signs of failure to aim high under particular conditions are inability to keep in the proper lane on curves and refusal to dim headlights for oncoming drivers. The latter indicates he does not look beyond his headlights, and therefore wants them to shine as far ahead as possible.

To aim high in steering, you must:

1) Steer by occasional brief glances well ahead at the center of your driving lane. Your vehicle automatically centers in the lane and your eyes can move freely. If the lane is open, there is no need to veer away from objects alongside.

2) On turns or curves, glance far ahead at the center of the intended driving lane. Do not look low at the ground, which could blind you to danger while turning. Traveling at a safe speed, you remain in a safe turning path.

3) At night, keep glancing well in front of your headlight beams. You see far beyond your lights and slow down automatically for poor visibility. Because your range of vision extends beyond your lights, you are not hesitant to dim them for oncoming cars.

Get the big picture: All drivers think they watch well ahead; but most fix their eyes on the car just ahead. And when the road is clear, they often watch only a few hundred feet ahead. This is small picture viewing. In daytime and at city speeds, it shows up mainly in an occasional abrupt stop or turn,

in poor timing of traffic lights, and in failure to see tie-ups ahead soon enough to change lanes and avoid delay. The small picture habit has much worse results at night, at rural speeds, and on icy roads. The big picture can never be seen if you allow your sharp central vision to stay fixed on one object. It is your fringe vision—the upper, lower, and side parts of your eyesight—that makes all judgments of speed, distance and direction.

To get the big picture, you must:

1) Allow more than one car-space ahead for each 10 miles of speed. You can thus watch well ahead for tie-ups and pick the lane that will avoid delays. When you do get near a vehicle ahead and cannot watch the larger scene, the unaccustomed closeness of the other car puts you on guard and you are ready with your brakes if they are needed.

2) Glance at the ground near the wheels of the other vehicles, then shift your eyes. Like a boxer's feet, a car's wheels telegraph its next move. You instantly note changes in speed or direction of other cars. At night, you can't see the ground near the other cars, so you naturally slow down, once you adopt this good seeing habit.

3) Sweep your eyes over a full city block, and in the country, watch a half mile ahead. This depth of field enables you to see conflicts early, to see problems confronting other drivers, so you can predict what they will do. This good habit forces you to check far down the road to both sides when you start up at an intersection. It also enables you to pick the safest time to glance away from the road.

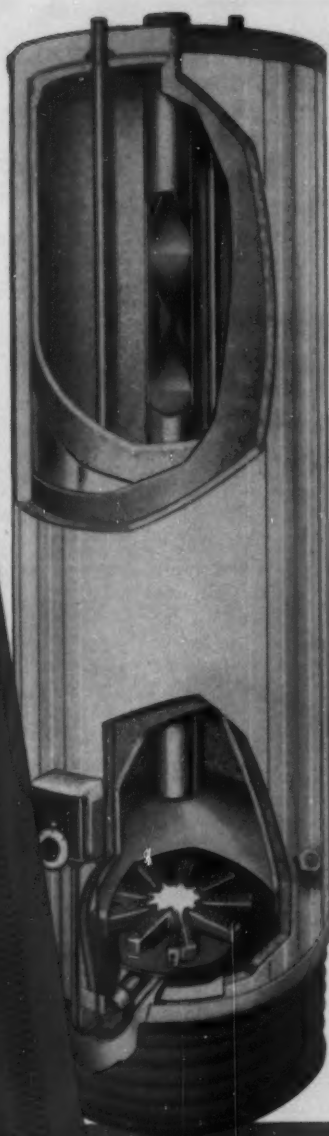
Keep your eyes moving: When your eyes stay longer than two seconds on any part of the traffic picture that has no special interest, they take on a blank stare. Unless you quickly move your eyes again, you can head blindly into trouble. Gluing your eyes straight ahead blurs them, dulls your mind, and blinds you to danger from the sides and rear. Freeze your eyes on a conflict you were slow to see and you may head blindly for another one.

To keep your eyes moving, you must:

- 1) Dispose of eye-holding prob-

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RATING SCALE FOR USE IN

SEEING-HABITS TEST

Aim High in Steering

1 CENTERS CAR WELL IN TRAFFIC LANE
EXCELLENT, 10 AVERAGE, 5 POOR, 0
Does not regularly hug left edge of lane or veer far left to avoid objects near right edge of lane. Does not refuse to use right-hand lane on a wide roadway when this lane is safe to use.

2 FOLLOWS SAFE PATH ON TURNS
EXCELLENT, 8 AVERAGE, 4 POOR, 0
Watches well ahead on turns. Slows down enough to be safe in event of a sudden conflict. Starts right turns within three feet of right curb. Does not "cut short" left turns. Turns left across path of oncoming vehicle only if he has ample time and has first checked left for obstacles.

Get the Big Picture

3 SEES DELAYS WELL IN ADVANCE
EXCELLENT, 8 AVERAGE, 4 POOR, 0
Sees traffic tie-ups ahead in time to avoid delay by changing lanes when possible. Sees problems facing other drivers so is expecting their next move (as when a driver swings out to pass a slow vehicle). Times traffic lights well—does not rush up to red light or need hard stop when green light changes.

4 MAKES SMOOTH STOPS AND TURNS
EXCELLENT, 12 AVERAGE, 6 POOR, 0
Sees need for stop or turn well in advance. Gets brakes on early so makes smooth stops. Makes all turns at a safe and comfortable speed.

Keep Your Eyes Moving

5 DISPOSES OF HAZARDS PROMPTLY
EXCELLENT, 8 AVERAGE, 4 POOR, 0
When unsure of the intentions of someone along the road, adjusts speed or changes lanes or taps horn—or does all three things if necessary—to dispose of the problem so he can move his eyes again.

6 CHECKS THE SIDES AND REAR
EXCELLENT, 6 AVERAGE, 3 POOR, 0
When halted for red light, checks sides before starting up on green. (If side view is blocked by vehicle beside him, lets this vehicle move first.) Checks rear mirrors each five seconds when traffic is ahead or behind. Checks rear instantly when he sees delay ahead. Checks rear before changing lanes or before a stop that could trap driver behind.

SCORE

SCORE

Leave Yourself an Out

Make Sure They See You

7 KEEPS A STOPPING-SWERVING SPACE
EXCELLENT, 8 AVERAGE, 4 POOR, 0
Stays far enough behind vehicle ahead to see past it and to guard against sudden stop by driver ahead. Allows extra space ahead when "boxed in" or when another vehicle is close behind him or when behind a large vehicle that blocks his forward view. Does not drive near another vehicle if can get more space.

8 SAFE SPEED NEAR INTERSECTIONS
EXCELLENT, 12 AVERAGE, 6 POOR, 0
Unless fairly close behind car ahead, adjusts speed on approaching intersections so he could avoid a crash if a side-street driver failed to stop or an oncoming car turned left across his path. If close behind car ahead, is fairly safe from these dangers—but must adjust speed so he could escape if driver ahead made sudden stop or turn at corner. (Safe speed here depends on whether he has swerving space.)

9 SAFE SPEED IN CURB LANE
EXCELLENT, 6 AVERAGE, 3 POOR, 0
Unless no possible conflict exists, keeps speed in curb lane lower than in other lanes. Is alert for pedestrians and for cars leaving parking spaces and driveways. In light traffic, avoids curb lane.

10 TAPS HORN WHEN IN DOUBT
EXCELLENT, 8 AVERAGE, 4 POOR, 0
When he must depend on a driver or pedestrian to stay put, and is not certain this person sees his car and will avoid a wrong move, taps horn. Does it early so could stop if necessary.

11 AVOIDS "BLIND SPOT" DRIVING
EXCELLENT, 6 AVERAGE, 3 POOR, 0
In passing car ahead, gets up quickly to where other driver will see him. When he must drive alongside another vehicle on wide roadway, gets up where other driver will see him or stays back where he could use brakes if other driver veered.

12 MAKES SURE SIGNAL IS HEEDED
EXCELLENT, 8 AVERAGE, 4 POOR, 0
Gets in correct lane well ahead of turning point. Gives advance signal for turn if anyone is near who needs signal. Checks rear mirror to be sure signal is heeded.

TOTAL SCORE ►

WHAT YOUR SCORE MEANS: A score of 80 to 100 means you are an expert driver; 71 to 85, almost an expert. Scores of 31 to 70 cover the low, middle and top range of average drivers who have lots of room for habit improvement.

The lower your score the greater your risks. If you drive 10,000 miles a year a score of 50 means a minor accident about every four years, an accident with

damages over \$25 about every 12 years—and at least once in your life you can expect an accident in which some person is injured or killed.

Scores of 16 to 30 mean three times as many accidents as a score of 50. Drivers who score below 16 have accidents about every 5,000 miles and are top candidates to kill or be killed in traffic. Note: This test assumes you do not drive after drinking.

How safely do you see? Have someone take a half-hour drive with you and score you on this test. It could be the most valuable half

hour of your life. For a copy of "Training Your Eyes for Expert Driving" send 25 cents to the Institute of Driver Behavior.

lems by changing your speed or lane, or even blowing your horn. Sometimes, you might have to do all three to avoid staring at one traffic problem and blinding yourself to another. At night, pick a speed that enables you to move your eyes, rather than stare straight ahead. On a long trip,

make occasional ten-minute stops to rest your eyes. When alone, do something to maintain the slight muscular tension needed for clear seeing: change your seating position often, whistle, chew gum, or talk or sing to yourself!

2) Move your eyes each two seconds, especially when the road

seems safe. Keep glancing near and far ahead and to both sides. The habit is restful to your eyes and forces you to adjust your speed to visibility, traffic, and weather conditions. Besides eliminating that blank stare, your roving eye automatically keeps checking both directions at intersec-

NEW

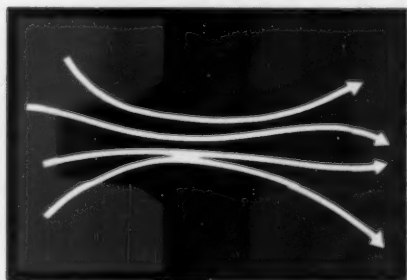
FROM



TWO-INCH CAST IRON

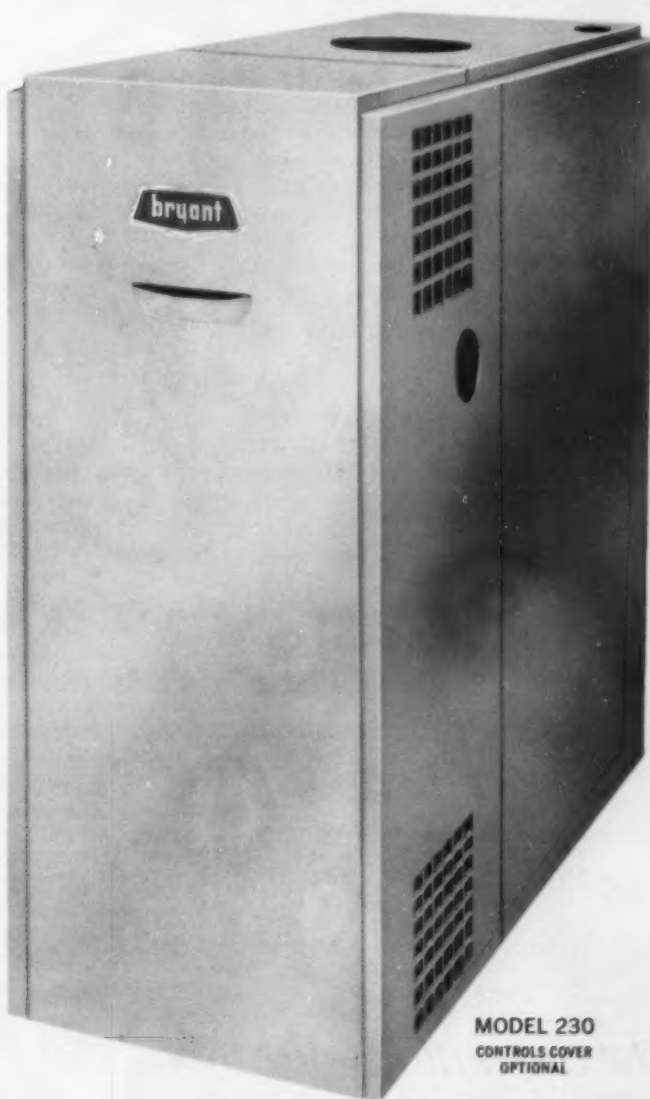
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Amazing Thermal Pins speed heat transfer from flue gases into boiler water.



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NEW BRYANT BOILER SECTION STUDDED WITH THERMAL PINS!

Developed by Bryant research and field tested for a full year, Thermal Pins are cast into the section wall — inside and out. They extract more heat from the gases and transfer it faster into the water; better in heat absorbing properties than conventional design.

8 FEATURES MAKE BRYANT EASIER TO SELL

LIGHTER BOILER is made possible by the Thermal Pin design; is easier to handle in the shop and on the job.

EASY ON FUEL. The new boiler responds quickly to the thermostat; has a shorter operating cycle; saves fuel.

COMPLETELY PACKAGED UNIT — comes all ready to hook up.

BUILT-IN WATER HEATER, factory installed, supplies plenty of hot water (3 to 4.4 gpm) the year 'round.



CONTOURED INTERNAL VANES (21 per section) also set up heating efficiency and strengthen boiler structure. Controlled water flow extracts all usable heat.

EXCLUSIVE BRYANT DIAPHRAM GAS VALVE AND PILOT are still the standard of safety and performance.

BRYANT CAST IRON BURNER. Efficient and quiet.

CAPACITIES. 75,000 to 225,000 Btu.



NEW! BRYANT HYDRONICS MANUAL

Developed for Bryant dealers. It takes the guesswork out of system design, proper boiler and pipe sizing; shows correct installation methods that assure a highly efficient hydronic system. It will save you untold time, money and customer gripes.



It's available through your Bryant Distributor or Factory Branch.

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8. Local ad campaigns.
9. Sound sales policies.
10. National reputation.
11. Gas air conditioning.
12. Bryant's financial strength.

Join up with



the company on the move!!!!!!

BRYANT MANUFACTURING COMPANY • Indianapolis 7, Indiana

How to drive safely

tions, the wheels of moving vehicles, the steering wheels of parked cars (to see if they have drivers), and the rear view mirror.

3) Check your rear view mirror each five seconds if any traffic is ahead or behind. Making this a regular habit makes it more natural for you to always check the rear mirror before changing lanes, making a turn, leaving the curb, or making a slow down that might surprise the driver behind you.

Leave yourself an out: Once you master the first three seeing jobs, you almost automatically leave yourself an out—a stopping margin ahead and open space at least on one side so you can swerve away from sudden danger. With no swerving space, you need extra stopping space. This will come naturally if you see the big picture with your moving eyes, for you'll feel uncomfortable when close behind another vehicle, when hemmed in on both sides, or when a driver is close behind. You'll want to avoid hurried, impulsive moves and blend well in traffic—the acid test of a good driver.

To leave an out, you must:

1) Move up or drop back in traffic so you ride along as much as possible. You are safe if a tire blows or if near-by vehicles collide. Allow extra space ahead when on a slippery road, when another driver follows too closely, or when you lack a safe swerving place. Be ready to veer off the road if necessary, move to the right if a driver wants to pass, apply brakes early to give the driver behind a chance to stop.

2) Reduce speed the instant your forward or side view grows limited. Slow down for hills, curves, bad weather, or when a vehicle ahead blocks your view. With open space ahead, danger is most likely to come from the sides, so you try to avoid the curb lane in light traffic, and reduce speed and watch for conflicts when near parked cars, intersections, and driveways. When starting up at an intersection with your side view blocked, creep ahead slightly and stop for a second look when the view improves.

3) Be ready to brake or veer in doubtful situations. Reduce speed

when pedestrians, cyclists, and animals are near your forward path; when the traffic light has been green a long while; when a driver on a side street approaches too fast; when an oncoming driver weaves; or when he slows down at a place he might make a left turn. When being passed from behind, be ready with the brakes if the other driver cuts back in too soon. When a situation calls for letting up completely on the accelerator, rest your foot on the brake after flashing your brake light enough to warn the driver behind but not enough to slow your vehicle.

Make sure they see you: When you have made the previous four seeing jobs habit, you are instantly alert as you near a spot where you will need to depend on another driver or a pedestrian to stay put for a few seconds. Here, most persons make a serious error, assuming that the other person will stay put and counting on the law to protect them. When someone does make a wrong move, it means that he did not see your vehicle or he thought he could make his move safely. You must make certain he sees you and shows by his actions that he will avoid a conflict. If he doesn't, warn him with a horn tap or a flick of your headlights.

Make sure you are seen by:

1) The driver or pedestrian halted near the side of your forward path. Unless you're sure he'll stay put, warn him and have brakes ready. Turn on your lights early at dusk and use them on overcast days.

2) The driver who might change lanes as you start to pass him. Is he nearing a point at which he might make a left hand turn? Is he behind a vehicle he might be about to pass? Is he near anything on his right that might cause him to veer left? Is he holding a steady speed and lane position? Unless you're sure he'll stay put, delay passing. Before passing, tap horn, glance at ground near his left front wheel to check for veering, then pass quickly. If you must travel alongside another car on a crowded multi-lane road, do not stay in the driver's blind spot. Get up where he can see you, or move back where you will have room to use your brakes if he veers.

3) The driver behind when you prepare to turn or slow down. Give an early signal and check your mirror to make sure it is heeded. In a surprise slowdown, warn the driver behind by pumping your brakes to flicker the brake lights.

Test your seeing habits: Using the accompanying test form, have someone check your seeing habits. The best test would be a half-hour trip in moderately heavy traffic. Pick a busy route where vehicle and pedestrian problems are apt to occur rapidly. A good test cannot be made in light or bumper-to-bumper traffic.

The scorer should be a competent driver who has read this article. While watching traffic and your actions, he should talk with you about something not related to driving. He should also occasionally direct you to watch for a certain intersection, turn at a certain corner, look for a certain address, stop at a certain spot for a moment, etc. This helps him see how you drive while your mind is not concentrating completely on watching traffic. He should point out seeing errors immediately after they occur.

The test should continue long enough for the scorer to rate you on all twelve items. You rate an "excellent" only if you practically never make the error, an "average" if you make it occasionally, a "poor" if you make it repeatedly. In case of real doubt, check "average." Highest possible score is 100. If you rate over 86, you're an expert driver. A score of 31 to 70 puts you in the average group, which means you have lots of room for improvement. The scores are certainly not to be taken lightly, for a score of 50 means you should have a minor accident every four years, an accident with damages every 12 years, and an accident in which someone is killed or injured at least once in your life-time.

Once your faulty seeing habits are pinpointed, one or two months' practice on the correct habits should enable you to stop practicing for an accident! ■

Material for this article was provided by the Institute of Driver Behavior, "a research and training organization dealing with the psychology of seeing in safe motor vehicle operation." Additional material can be obtained from the institute at 1380, Penobscot Bldg., Detroit 26.

What should be done about the electric heat threat?

IS ELECTRIC HEATING a threat right now? Forty-two per cent of the LPG dealers contacted in BPN's current Dealer Opinion Survey say it is. And another 37 per cent feel electric heating is liable to become a threat in the not very distant future. Those opinions were spelled out in the two preceding articles in this three-part series.

THE DEALER SPEAKS

What can be done about this threat? Most dealers seem to feel the salvation of the gas heating load lies in gas unity; but there are variations on this theme. On this and the following pages we present some of the more stimulating and constructive ideas for combating this threat, as presented by the panelists.

Cost is going to determine which fuel will do the job. We must watch the cost of electricity to make sure that the government does not subsidize electric heating, or that an electric heating rate is set so low that the common electricity user pays the electric-heating customer's bill—

M. N. Allen

The entire gas industry must fight together—with more publicity, better gas furnaces, and air

- *Should something be done on a national basis?*
- *Should the L.P. and natural gas industries get together for this effort?*
- *Should LPG dealers work with neighboring gas utilities?*
- *What can LPG dealers do on their own?*
- *What are they doing right now?*

conditioners, etc.

Electric utilities are giving an electric appliance as an incentive to install electric heating. I don't know how, an LPG dealer can do this—

W. W. Gresham, Jr.

We need to tell our side of the story individually and collectively. I maintain that with equal insulation, we can cut their fuel bill in half. Our own record proves this. The trouble is that most of our customers do not have enough insulation and their gas bills are nearly up with electric heating bills—

E. C. Stucky

Certainly, the combined organized effort of the entire gas industry would be desirable.

We try to convince our customers that "For heating, fire beats a wire"—

K. H. Koach

This should definitely be a uni-

fied effort on the part of the gas industries. It could well be the reason for encouraging the unity the gas industry should have accomplished years ago.

LPG dealers will have to be alert to every opportunity to sell all-gas homes to builders. They should also educate the public to the fact that gas is the same, in the city, in the suburbs, and in the country—

John H. Paulding

A joint effort by the L. P. and natural gas people to combat electric heat nationally certainly will have some value in some areas.

We are presently doing nothing to combat electric heat—

Robert B. Sahagen

All L. P. and natural gas companies should put on combined advertising programs. We have tried to split advertising costs on a statewide basis for about five



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PROPANE FROM SINCLAIR'S EAST CHICAGO REFINERY IS READY FOR DELIVERY!

The nation's newest and most modern LP-Gas recovery unit is now in operation at Sinclair's East Chicago refinery. The fully-automatic control and testing equipment assures production of the highest quality propane that meets all... and exceeds many NGAA specifications. Contracts are now being written to move this product to distributors in the mid-west market.

Take advantage of all the EXTRAS you get when you become a Sinclair TRUFLAME LP-Gas distributor. Sinclair's specialized engineering service; guaranteed delivery contract; highest quality product; and the tested TRU-FLAME 50/50 Advertising Program can help you boost your sales for greater profits. Don't delay... Call TODAY!!



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Management Portfolio

years but cannot get the LPG dealers or the natural gas distributor to cooperate—

Chester L. Kaufman

We believe that in order to sell against electric heat, the biggest job is for the gas man to stay in close touch with the builder. Our company calls on every builder and heating contractor. We annually entertain both so we become friends with them. By so doing, we believe we have done a better job this year in combating electric heat than we did in the previous year.

The hardest thing to do at this time is to show some of the people how wrong some quotations are. This is especially true in a new building, as they find that we are correct after the home has been built and they then wish they knew the facts earlier. My suggestion is that somewhere—possibly at the university of Illinois—three identical homes be constructed to develop comparative heating cost figures for LPG, natural gas, and electricity. A study of this type should be made by some university or testing laboratory of national reputation so the results would not ring of prejudice.

Possibly we might have to become insulation salesmen, as the electric industry has done. That way, we could sell a smaller sized unit and become more competitive—

W. A. Schuette

The L. P. and natural gas industries should get together, both nationally and locally. LPG dealers should work with the local gas utility and local furnace installers to promote gas heating in the fringe areas between the



W. A. Schuette



Norman L. Hahn

utility and dealer territories. Manufacturers should provide more dollars for national advertising and for local campaigns—

Norman L. Hahn

The sooner LPG dealers take electric appliances off their sales floors, the sooner we can discourage electric heating—

Ernie Knutzen

The problem revolves around the ability of the electric utilities to get together and present a united, concentrated mass advertising effort. LPG dealers, on the other hand, are unable to unite and present the same team effort because in many cases they are competing with each other.

In Montana, we formed a committee to help present a united front against electricity. The committee is from our Montana LPGA, and if it is successful, I will certainly recommend it to other state associations in the Northwest—

John Wallace

Gas heat must be promoted to the public to the extent that buyers will demand it in development homes. This must be done on a national basis—through architects and developers. Since the LPG industry cannot afford the expensive advertising program it will take to do this job, it must tie in with the utilities.

I have been working with con-

tractor friends to get heating jobs, but in many cases by the time you add electric air conditioning, you are out of line price-wise. We must have a good gas heating and air conditioning unit that will sell at a reasonable price and fit into a small space—

Clem A. Childers

It is rather hard to determine what can be done on a national basis. But in certain areas, any means of giving the public information about the operating costs of electric heating—especially as opposed to LPG—would be a step in the right direction. In cases where the LPG dealer gets to talk to the customer before it is too late, it is fairly easy to show the big difference in costs.

One thing to stress is the fact that electric heating salesmen almost insist that the customer do a super job of insulating before they will entertain any thought of installing their kind of heating equipment. This is a good sign that they realize that without all the efficient insulation, they would be licked. It's an admission that their costs must be higher.

One important factor which you do not hear too much about is that electric heat is almost entirely a rural deal—and that they are unable to prevent power failures during storms. We have a real talking point in our non-interruptible gas heat—

Gaylen Frey

It would help if the gas industry could develop—and put on the market at a competitive price—an all-gas furnace with thermoelectric cells to run the fan and controls—

George F. Anderson

The answer is a national advertising program followed up on a local basis, with gas utilities and



W. W. Gresham, Jr.



E. C. Stucky



K. H. Koach



John H. Paulding



Robert B. Sahagen



Chester Kaufman

In Canada and Illinois

Mississippi Tank delivery units increase profits for progressive operators

These Mississippi Tank delivery units look different, being engineered to different specifications for particular needs, yet they have one thing in common: They're both increasing profits for their owners! All Mississippi Tank delivery units are designed for top payloads and trouble-free service. There's a model that'll make more money for you!



This 2,600 water gallon Titan, Jr. delivers more gas than two of the old-type units in the Ruby Propane Gas fleet, Effingham, Ill. In addition, Mr. Jack Bennett, owner, reports that the excellent maneuverability of the Titan, Jr. allows his drivers to deliver over roads that they were previously unable to travel.



From Montreal, Canada, Mr. Georges Langelier of Country Gas reports that this 1,500 water gallon Atlas has proven so profitable in his operation that he purchased a 2,300 water gallon model recently. Although economy-priced, the Atlas features many outstanding design innovations that assure trouble-free service.

**For full details on Mississippi Tank profit-designed equipment
MAIL THE COUPON TODAY!**



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Mississippi Tank Co., Inc.
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BPN-2

Without obligation, RUSH literature on

- ☐ Delivery Units ☐ Transports
☐ Domestic and Bulk Storage Systems

Name

Company

Address

City and State

THIS MONTH'S DEALER OPINION PANEL:

M. N. Allen—Allen's Bottled Gas Service, Presque Isle, Me.
George F. Andersen—Andersen Gas & Appliance Co., Presho, S. D.
C. R. Cavanaugh—Cavanaugh Bros., Las Vegas, Nev.
Clem A. Childers—Sungas, Raleigh, N. C.
Gaylen Frey—Modern Equipment, Inc., Michigan City, Ind.
W. W. Gresham, Jr.—Gresham Petroleum Co., Indianola, Miss.
Norman L. Hahn—American Propane Gas Co., Omaha, Neb.
Frances L. Holliday—Cumberland Natural Gas Service, Tateville, Kentucky.

Harry I. Horn—Harry I. Horn Co., Anaheim, Calif.
Chester L. Kaufman—Blue Flame Gas Co., McCall, Idaho.
Ernie Knutzen—Golden Gas Co., Golden, Colo.
K. H. Koach—Green's Fuel Inc., Sarasota, Fla.
Bert J. Miller—Browns Propane & Appliances, Hardin, Mont.
Curt Mosher—Bayless L-P Gas Inc., Damascus, Ohio.
L. H. Parlett—The Arundel Gas Co., Edgewater, Md.
John H. Paulding—Ugite Gas Inc., Malvern, Pa.
Robert B. Sahagen—Robert B. Sahagen & Co., Inc., Rochdale, Mass.
W. A. Schuette—Hausgas, Inc., Washington, Mo.
E. C. Stucky—Stucky's Gas & Appliances, Geneva, Ind.
John Wallace—Petrolane Gas Service Inc., Long Beach, Calif.
T. B. Watkins—Anderson & Watkins, Roswell, N. M.
Clyde Cheatum—Coleman Gas Service Co., Inc., Wichita, Kan.

LPG dealers doing local advertising.

In lots of areas, dealers should consider getting into air conditioning as well as heating—to have a complete comfort conditioning package to compete with the package offered by electric power—

C. R. Cavanaugh

I feel that if the LPG dealer would sell his product, instead of its price (in comparison to other dealers), we would not have to worry too much about electric heating for some time. There are simply no salesmen in the LPG industry—at least in our area, and that includes our own company, I am sorry to say.

I do not think any LPG dealers in our area are doing anything to combat electric heating. The reason for this is pretty deep, I feel. The 2½ cent to 4 cent margin—gross, that is—is not enough for anyone to get very excited about how much he will make by spending time working up new customers—

Clyde Cheatum

Greater attention should be paid to the architects and planners. Here, the large utilities should step in.

The national advertising should be by the gas utilities and should have the great impact of electric advertising. Using more imagination, selling should be on one or two dominant themes saying "Gas is better." Prestige should be tied in—

Harry I. Horn

Something should be done on a national basis with the L.P. and natural gas industries getting together, if possible.

Dealers should work with local utilities, they should keep up their advertising promotions—

Bert J. Miller

The L.P. and natural gas industries should get together to combat electric heat—

Curt Mosher

All members of our gas industry should so sell themselves on gas that they spend 100 per cent of their time in selling, installing, and giving super service on the very best gas heating and air conditioning systems available. LPG and natural gas should work together—not for all activities, but to correlate the work each is doing.

Our two companies are doing

their best to sell good heating jobs, to make sure that our customers have 24-hr service available and that their heating and LPG systems stay in working condition all winter. This is our strong point. Also, we have taken some advantage of the electric industry's insistence on insulation—we are now able to require some in old houses—

Frances L. Holliday

We have had cooperation in the past on promotion, etc., with the Washington Gas Light Co., even though they are somewhat beyond our area. During one 12-month period, we split the cost with them on an area billboard program with all boards located in our area. Their idea was to ring the city with co-op billboard advertising; but the program was discontinued because other LPG operations around Washington did not choose to go along.

It is impossible for us to cooperate with the local utility because it is a combination company. As long as combination companies are as influential as they are in AGA, etc., national cooperation will be hard to achieve because they hate L.P. gassers.

I believe the manufacturers of gas heating equipment can do a lot by continuing their programs of developing better and better and better equipment.

The other big thing is the cost of LPG for heating. In our area, it is marginal. We find it hard to retail for less than five cents per pound. This is rough when oil is 14 cents per gallon and electricity is 1¾ cents per KWH. Fuel oil has been pushed out of the city by natural gas and the oil folks are fighting for business in the very area in which we operate. If we could sell gas for heating at 3½ to 4 cents per pound, we would cut into their market deeply. Until we can sell for that price, we will be restricted to the space heater and the occasional central-fired job—

L. H. Parlett



TLC* dryer control thinks for itself

... all she does is set the dryness she wants!

**Robertshaw TLC* dryer control
does for the laundry
what automatic cooking
has done for the kitchen!**

Robertshaw's TLC* dryer control automatically determines evaporation taking place by measuring temperature drop of air passing through wet clothes ... calculates with extreme accuracy the amount of drying required for any size load, any fabric, any mix. Temperature is gradually reduced as clothes approach desired dryness. When set dryness is reached, heat is turned off for gentle fan-cooling.

Results: *tender, loving care* for even the daintiest things, because:

- TLC eliminates drying time guessing ... *there is no timer*
- TLC dries everything from single handkerchief to full load
- TLC drying temperatures safe for all fabrics ... any mix
- TLC prevents over-drying ... and reduces tumbling wear
- TLC delivers cool, dry clothes ... wrinkling reduced
- TLC is as simple to operate as your range oven control

In short ... TLC dries clothes safely ... in the least amount of time ... economically ... automatically ... *and without a timer* ... not even a hidden one! Specify Robertshaw TLC control on your 1962 dryers.

VMA7798



... the name that MEANS temperature control

ROBERTSHAW THERMOSTAT DIVISION

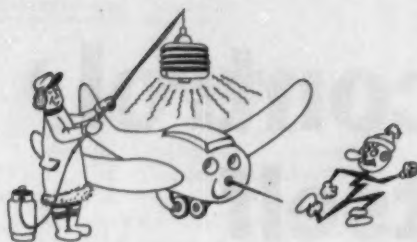
Robertshaw-Fulton Controls Company
Youngwood, Pennsylvania

Canadian Affiliate

Robertshaw-Fulton Controls Company, Limited, Toronto

*Trade Mark — Robertshaw TIMER-*less* control system for any dryer
(available on 1962 dryers)





Gas infra-red heaters help keep defense planes at the ready line

LPG-fired equipment beats electricity
in both first cost and operating expense
to win nod from Air Defense Command

J. ARTHUR THOMPSON

THE PLANES OF THE AIR DEFENSE COMMAND must be ready for service at any and all times. Along the Northern border of the United States, where it gets so cold that the mercury sometimes shivers in the bulb, keeping planes at combat readiness can become a problem.

Hangars or "Ready Aircraft Shelters" are comparatively large and very hard to heat. Unless there is heat in winter, servicing planes becomes extremely difficult and under some conditions, adequate service would be almost impossible.

This is the problem that faced the Facilities Support in the office of the Deputy Chief of Staff for Civil Engineering, Air Defense Command.

A firm of consulting engineers, Henningson, Durham and Richardson, Inc., was called in to survey the problem and present recommendations. The survey and research work, including site investigations, was conducted at six Air Force bases in the northern part of the country.

(Nothing herein shall be construed as an endorsement by the United States Air Force of any products mentioned.)

The engineers very quickly determined that a minimum spot heating in Ready Aircraft Shelters was a necessity.

In their opinion, convection or air handling units would not be satisfactory. Complete heating could not be provided because of the high heat loss of the buildings; spot heating was the obvious answer. Both doors must be open at the same time, so blowing of warm air to the floor from the heights necessary for hangar service would be very difficult and probably not economically feasible.

It was recommended that infra-red heating generated by either gas or electricity be used. These rays are similar to the rays of the sun and warm only bodies that absorb them and not the air through which they pass.

It was determined that the servicing jobs done in these shelters were at certain points on the planes. By having the heaters placed on each side of the area where work was done, these areas can be warmed and men working on the planes are comfortable without regard to temperatures in the other areas of the building. It was determined

that eight heaters would be required in each shelter.

Careful research was done and detailed estimates were made as to costs of installation and operation at each base for each of the three forms of fuel finally considered: electricity, natural gas and L.P. gas. Naturally these costs varied somewhat from base to base, depending on local conditions.

Electric rates varied from 0.9 cents to 1.5 cents per kwh. Natural gas, where it was available, varied in price from 65 cents to 87 cents per Mcf. At the time of the survey, firm prices on propane were not available, but inquiries indicated a rate of 14 cents per gal. in transport lots.

The number of heating hours from Oct. 1 to May 1 was taken as 5088, or an estimated 8710 therms per shelter per season. Conversion equivalents were: 1 therm equaled 0.1 Mcf. of natural gas; 29.3 kwh of electricity; 1.09 gal of propane.

Detailed estimates were made for each of the six bases surveyed. Natural gas was not available at three of them.

Estimated average costs per base for installation were:

**"the best
cost-cutter and
business-
builder we've
ever discovered."**



"I wouldn't take our radio out now if it cost **twice** what it did." That's how Victor Lagrange, president of Home Gas and Fuel Co., Inc. of Lake Charles, Louisiana feels about Motorola 2-way radio. His records **prove** that savings in mileage and phone bills alone, more than pay for his radio—so that means the savings in driver time and the resulting additional business can be counted as **profit**. And Mr. Lagrange has found new accounts easier to open and old ones easier to hold since he can provide swift, reliable radio dispatched service. You owe it to yourself to find out how Motorola 2-way radio can cut **your** costs—add to **your** profits. Get a demonstration soon.

GET THE COMPLETE PROFIT STORY—MAIL THIS COUPON TODAY



MOTOROLA 2-WAY
RADIO

Motorola Communications & Electronics, Inc.
Dept. 6PM-12

A Subsidiary of Motorola, Incorporated,
4501 Augusta Boulevard, Chicago 51, Illinois

- ☐ Mail me full fact kit on 2-way radio
☐ Have representative telephone for appointment

Name _____ Title _____

Company _____ No. of Vehicles _____

Address _____ Phone _____

City _____ Zone _____ State _____

**2
New**

RIGGID Tubing Cutters

Give you Grooved Rollers
for clean flare cut-offs...
no waste! Also, Enclosed
Feed Mechanism • Spare
Cutter Wheel in Handle •



RIGGID No. 205 Tubing Cutter

Time-Saving, Slide-to-Size $\frac{1}{8}$ " to $2\frac{1}{4}$ " O.D. Capacity

Made of lightweight, high-strength cast aluminum alloy, you'll find these new RIGGID Tubing Cutters extra handy. Slight push on handle of large-size-range RIGGID No. 205 snugs cutter wheel against tubing... locks it in position until released. Feed screw fully protected and enclosed... always feeds into tube with easy handle turn... can't jam with chips or dirt. Wheel gives

quick, clean cuts of copper, brass, aluminum tubing and thin-wall conduit... no burr. Grooved rollers give easy flare cut-offs without tubing waste. Tubing always turns freely on 2 of 4 Rollers. Rollers smooth tubing ready for soldering. Fold-in reamer always handy. Spare cutter wheel in handle. Wheel for plastic and aluminum pipe available for No. 205 only.

Conform to Fed. Spec. GGG-C-771b Type II—Class I—enclosed feed mechanism



RIGGID No. 105 Tubing Cutter

Protected Feed Screw
Always Easy-Turning
 $\frac{1}{8}$ " to $1\frac{1}{8}$ " O.D. Capacity

To save time and tubing, order these new RIGGID Tubing Cutters today!
Your Supply House has them!

RIGGID

The Ridge Tool Company, Elvira, Ohio, U.S.A.

Infra-red heaters

Electricity	\$59,800
Propane	\$49,083
Natural gas (where available)	\$43,563

Piping from mains was included in natural gas costs and an 18,000 gallon tank was included in propane costs.

Estimated average costs per base for operation per season were:

Electricity	\$11,178
Propane	\$ 5,315
Natural gas	\$ 2,774

Panelbloc heaters were selected as the most suitable for the particular problems encountered. They have a totally enclosed heat exchanger, are vented and are approved for hangar installation by the National Board of Fire Underwriters.

Each heater has a 100,000-Btuh capacity output. They were installed with thermostats mounted on the lower side and wired so they may be turned on or off in the pairs which bracket each area to be heated. They were installed overhead with a minimum of 22-ft clearance above the floor.

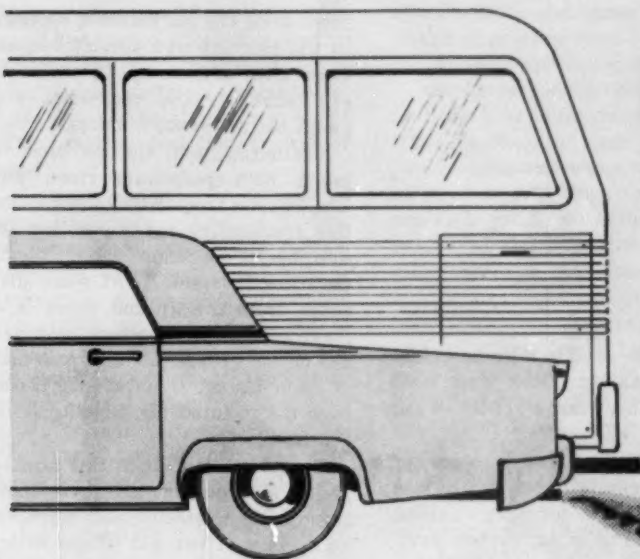
While still considered as experimental installations, to date these have worked in a satisfactory manner. Costs have been about as estimated. A longer period of operation will be necessary before a final evaluation can be made.

As a result of experience to date, recommendations have been made to the manufacturer for a few minor structural changes, particularly in the hoods of the heaters.

Natural gas installations have been made at Glasgow AFB, Montana; Selfridge AFB, Michigan, and Minot AFB, North Dakota. Propane installations have been made at Duluth AFB, Minnesota; Grand Forks AFB, North Dakota; and Kincheloe AFB, and K. I. Sawyer AFB, both in Michigan.



BUTANE-PROPANE News



How LPG fights air pollution

BPN POWER



Whether it's smog, smoke, or smell, air pollution is whatever is offensive to the public. The eyes and the nose are the best instruments for measuring it, and transit officials who fail to recognize this fact cannot hope to find a satisfactory solution.

AS A PUBLIC ISSUE, air pollution is almost as beclouded as the atmosphere it infects. Science was rather slow to investigate its causes and possible remedies, for until the growth of our cities, with their pollution-forming industrial and social activities, made it a nuisance worthy of notice, there was little apparent need for research.

Besides, the public has little understanding of the subject. Individuals tend to view it in the light of their own experiences: like the legendary blind men and the elephant, they regard as air pollution only that particular kind to which they have been exposed.

For example, people who lived in Pittsburgh or St. Louis before the age of smoke abatement would make air pollution and smoke synonymous. People in Los Angeles tend to think of air pollution as smog. People in London would also class it as smog, yet their smog is very different from the Los Angeles type of smog.

Each is correct in his interpretation, up to a point. Air pollution is all of these—plus. It includes, for instance, dust from grinding operations. But in today's complex society, the kinds of pollutants that are getting the most attention—since they are most closely related to the development of society itself—are the products of combustion.

This type of air pollution is a difficult one to abate. You can't outlaw the activities that cause the pollution. (Automobiles are surely here to stay!) The best

that can be done is to prevent these activities from giving off pollutants, or at least reducing the amounts given off to an acceptable level.

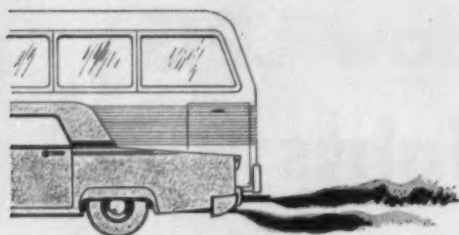
In the search for remedies, the most obvious solution is always this: switch to a non-polluting fuel. Finding such an ideal fuel and making it economically available are the most difficult steps in effecting the switch.

One perplexing difficulty is that some "remedies" are really not remedies at all. They simply would substitute one form of air pollution for another. Obviously, in so doing, the best they can hope to promise is "the lesser of the two evils." Even then it's not always too clear as to whether the remedy actually is the lesser. It may be the greater.

One thing can be said, however: In all these searches for cures, LPG invariably comes up for consideration. Its clean-burning characteristics mark it as an important agent for abatement: in some applications, the cure is almost a complete one, in others it is at least a definite improvement. But even in the latter cases, it is abundantly clear that LPG would not replace one form of air pollution with another. This is a claim that certainly could not be made for diesel or other fuels.

In many power applications, indoors and out, the key to the sale is air pollution control. For LPG dealers to be able to make the most intelligent presentation on the subject, it is important that they know something about air pollution—what it is and how the use of LPG can reduce it.

A BPN Exclusive



First, what is air pollution? The phrase has been defined¹ as an all-inclusive term covering the entire scale of pollutants—smoke, dust, mists, odor, carbon monoxide, and other non-smog-forming gases, and even smog itself.

Air pollutants are classified as aerosols or gases. An aerosol is a minute particle of matter, so small that it can remain suspended in the atmosphere for a long time. Aerosols diffuse light and therefore blur our visibility.

There are four types of aerosols—smoke, fumes, dusts, and mists. Smoke contains both liquid and solid particles. It is the unburned product of incomplete combustion. It may be emitted to the air from the burning of rubbish (Los Angeles banned backyard incinerators several years ago, as a smog abatement-measure), the industrial burning of coal or heavy petroleum products, or from the exhaust pipes of motor vehicles.

Fumes are solid particles, generated by the condensation of vapors from solid matter after volatilization from the molten state, or by sublimation, distillation, calcination, or chemical reaction. They are emitted to the air by many manufacturing processes. . . .

Dusts are solid particles, released chiefly by grinding, drying, sawing, or dusting processes.

Mists are liquid particles (e.g., fog and steam). Industrially, mists are released mainly in spraying, coating, and impregnating operations. An organic mist from auto exhaust is formed in the atmosphere by the action of sunlight on olefinic hydrocarbons and nitrogen oxides. (This organic mist, as we shall soon see, is what people in

Los Angeles—and to a lesser extent in San Francisco, New York, and certain other large cities—call smog.)

The following gases, some of which contribute to smog, are also air pollutants: nitrogen oxides, ozone, sulfur dioxide, carbon monoxide, hydrocarbons, aldehydes, acids, and several gaseous *inorganic* acids.

Two of the aerosols—fumes and dusts—can quickly be eliminated from our discussion, since neither is a product of the burning of a liquid fuel. Smoke, being the product of any incomplete combustion, may be given off by the burning of fuels in internal combustion engines; the particles in it may or may not be contributors to Los Angeles-type smog. As defined, a fourth aerosol, inorganic mist, is a smog-maker.

Let's see, now, what makes Los Angeles-type smog. To have it, you must have intense sunlight, for the chemical composition of smoggy air is brought on by a "photochemical" reaction. That is, the sunlight converts the pollutants in the air into certain compounds which attack the eyes, offend the nose, and reduce visibility.

This sort of thing can happen anywhere, given particular types of pollutants (those that emanate from internal combustion engine exhaust) and sunlight. But the potential smog-forming pollutants will dissipate quickly if you have sufficient air movement. The big problem in Los Angeles is that normally you don't have this air movement. The city lies in a "basin," surrounded by mountains. During the day, prevailing ocean breezes gently move the pollutants inland, but not fast enough (or far enough) to prevent smog from forming in the basin. In the down-

town area, the air becomes smoggy in the morning and doesn't become clear until afternoon. In the eastern suburbs, the mornings are clear, the afternoons, smoggy.

Ordinarily, too, the air that is laden with pollutants rises, but Los Angeles frequently (other cities less frequently) has a peculiar atmospheric condition called "temperature inversion." At some distance from the ground there is a layer of warm air, which overlays the cooler ground air and prevents it from rising. This acts as a lid over the polluted air, holding it in the basin.

Today, moving about this atmospheric environment are more than three million vehicles, each burning an average of two gal. of gas daily. Engine operation and losses incidental to production, storage, and distribution of gasoline result in the release of more than 2000 tons of hydrocarbons each day, along with 9700 tons of carbon monoxide, 450 tons of oxides of nitrogen, and lesser quantities of other combustion products. Studies show that these emissions represent more than 80 per cent of all hydrocarbons, 90 per cent of all carbon monoxide, and well over half of all oxides of nitrogen given off by all sources.²

Now let us stress that volumes of pollutants, given off in other large cities, could also form smog if given the "right" atmospheric conditions. One reason the problem is so much more critical in Los Angeles than elsewhere is that nowhere else are there so many vehicles in operation. Some day there will be!

These are the compounds that form L.A.'s smog, and here, in brief, is how:¹ Nitrogen oxides are formed by all combustion. Whenever anything is burned, some of the nitrogen in the air combines with some of the oxygen to form nitric oxide (NO). This gas in turn combines with more oxygen to form nitrogen dioxide (NO₂).

Under intense sunlight, nitrogen dioxide reacts with olefinic hydrocarbons to produce eye irritation, visibility reduction, and other manifestations of "smog."

When nitrogen dioxide absorbs energy from the sun, it breaks up again into nitric oxide and oxygen.

(1) "Air Pollution and Smog," Air Pollution Foundation, 2856 Mission St., San Marino, Cal.

This single atom of oxygen, aided by the presence of olefinic hydrocarbons in the atmosphere, combines quickly with an oxygen molecule (O_2) in the air to form ozone (O_3), another pollutant typical of smog.

There is one other component of smog—aldehydes. This is a class of compounds containing carbon, hydrogen, and oxygen, and may be formed as a result of incomplete combustion or from the action of sunlight on nitrogen dioxide and olefinic hydrocarbons in the atmosphere. This latter phenomenon produces acrolein and formaldehyde, two smog components that have been found to be major eye irritants.

Let's remember, now: Even if these are the only gases that contribute to L.A.'s smog, they are not the only gases that are pollutants. Another is carbon monoxide. As Chambers says,² "While carbon monoxide has never been connected with the photochemical formation of smog, its toxicity and its abundance in exhaust gases give it a unique position as a primary air pollutant in its own right. The recent adoption, by the California State Board of Public Health, of a quality standard for ambient air well below levels of CO frequently experienced in Los Angeles, has made it morally, if not legally, mandatory to reduce the total amount released.

"It is estimated that about 9720 tons of CO enter the Los Angeles atmosphere daily from all sources. About . . . 91 per cent comes directly from the tailpipes of automobiles. . . ."

As is well known, the city, and Detroit engineers, have been working desperately to eliminate or at least reduce to acceptable levels the amount of smog-producing pollutants given off by automobile exhausts. This they would do by converting pollutants into less harmful compounds.

There are other possible "solutions," however. One would be to enforce the use of an alternate fuel. LPG has been considered, but the obvious difficulties of supply

and the costs and inconvenience of dual-fuel systems have ruled it out for general use in passenger cars.

Another proposed substitute fuel is diesel. To the layman who identifies diesel smoke with smog, this idea sounds ridiculous on the face of it. But evidence from reported research (still, we believe after a search of the literature, inconclusive) indicates that diesel gives off only a small amount of hydrocarbons, including the culprit olefins, and relatively small amounts of carbon monoxide.

On the other hand, they also give off eye-and-nose irritating aldehydes.

As a total answer, diesel would also fail. It's inconceivable that anti-smog officials would try to jam the necessary \$3500 to \$4000 investment down the throats of Southern California motorists.

In public vehicles, this cost is not an insurmountable problem, so in recent years, city fathers have turned to diesel buses. And not too long ago, extensive work was done on dieselizing cabs in the area. Recently, the transit officials bought

some additional diesel buses.

This is not the right answer, as anyone who has lived with diesel buses and trucks will tell you. The smoke they give off is highly offensive. The aldehyde odor of diesel exhausts is not something to be taken lightly. The heavy droplets in the smoke settle on automobiles in the vicinity, spotting windshields and ruining the metal finish.

As the Air Pollution Foundation says,¹ "Any discussion of air pollution (as distinguished from actual smog) would be incomplete without pointing out that offensive odors are as bothersome to some persons as eye irritation is to others. . . . After all, the only good measuring device for odors is the human nose and the only measuring instrument for eye irritation is the human eyeball. . . ."

"Odor control is important because, although many disagreeable odors constitute only a nuisance, certain intense odors may produce nausea, and persistent odors that regularly disturb sleep can interfere with our well-being."

Thus diesels would not be a solu-

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(2) Figures quoted from "The Automobile and Smog," a paper presented by Leslie Chambers, director of research, Los Angeles County Air Pollution District, at a symposium at the University of California Medical Center, San Francisco, Jan. 16-18, 1960.

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DEPT. B-39

PONTIAC, ILL.

Air pollution

tion to air pollution. As the Air Pollution Foundation says, "The public is entitled to abatement of the diesel's smoke and odorous aldehydes."

And as Chambers put it when discussing the diesel taxicab tests, "They did smell as diesels smell, raising a real question as to the desirability of substituting one esthetic insult for another..."

Furthermore, there has been some evidence that aldehydes are one source of the eye irritation that accompanies smog. Aldehydes are also believed to be toxic to plant life.

Yet, despite these well-considered opinions, Los Angeles goes blithely ahead, burning diesel fuel in its buses and incurring public resentment. Even if there were conclusive evidence that diesels would abate the smog problem (and there isn't), the mere fact that people *think* diesels cause smog should prove that it is a source of irritating air pollution.

Transit officials who continue to order diesel buses are failing to heed the down-to-earth words of the Air Pollution Foundation: "The only good measuring device for odors is the human nose and the only measuring instrument for eye irritation is the human eyeball."

In other words, the public is the final judge of what is irritating.

Officials might best hark back to the specifications which were laid down in the Chicago Transit Authority's franchise several years ago. In effect, the franchise required that every possible effort be made to reduce smoke and odors.

With these specifications as a mandate, the Authority adopted LPG buses some 10 years ago.

That this was a popular move has been proven many times. The public likes LPG buses, and time and again when chartering a bus for a special use, people have made it a point to ask for them.

So transit officials should bear in mind that smog is only one aspect of air pollution in the context we are considering. Nose-and-eye irritation is an equally important aspect. And a third is carbon monoxide production.

CO is the by-product of inefficient combustion. Hence, it is largely controllable by proper maintenance, particularly maintenance of ignition and carburetion. And proof that LPG-fueled engines are easier to maintain is overwhelming. CTA's own records bear this out, covering as they do 35 million miles of experience over 10 years, with a fleet of 1548 propane buses.

In view of all this, it is difficult to understand why the Los Angeles Metropolitan Transit Authority and other utility operators persist in their efforts to purchase diesel equipment. Diesels are sources of air pollution, for air pollution is much more than smog.

Air pollution, in other forms, is a critical matter in enclosed spaces as well as outdoors. Next month, we will discuss the "inside story" on how LPG Fights Air Pollution. ■

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

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How Richmond company keeps its customers happy

Maybe it's only natural, since the company is of Southern extraction and Southerners are noted for their courtliness, but whatever the reason, Bottled Gas Corp. of Virginia (Richmond) is famous for its good customer relations.

We asked Otto Williams, the company president (and LPGA v.p.), to tell us why. He set forth the following reasons:

- Letters of appreciation are sent to new customers.

- A warranty on appliances purchased from us is mailed or, when possible, delivered personally.

- "Range Exchange Programs" have been set up in the public schools. A new range is furnished to any school, free of charge, for its home economics department. At the end of the year the old one is taken back and replaced with a new one.

- Cooking demonstrations for the home economics classes in the high schools in our area are held as often as time permits. (See BPN, July, 1959, page 95.)

- Cooking demonstrations for home demonstration clubs are held regularly.

- Discounts are given to churches and other charitable institutions that buy appliances from us.

- An easel on the cashier's counter reads: "Tanks of Thanks. We appreciate your business."

- Employees are shown films and given booklets on customer relations.

- The company's monthly publication, "Heat Flamer," emphasizes to all employees that the company is judged by the attitude of each employee in dealing with the public.

- Trucks and salesmen's cars are kept in as neat a condition as possible.

- The credit department has been redesigned so that it has a more pleasant appearance—and its name has been changed to "Customer Accounts Department."

- Contributions are made to various civic and school publications in the form of advertising

space.

- Members of our organization participate in civic activities and charitable campaigns.

- Careful and courteous driving by all employees using company vehicles is insisted upon.

- The switchboard operator greets every call with a "Good


morning" or "Good afternoon, Heatflame."

- Favors such as water bottle caps are given to church groups for their special meetings.

- Managers are encouraged to make personal calls on customers whenever complaints are received.

- Prompt service is given in case of trouble, and to improve this phase of the business, a two-way radio system has been installed in our trucks.

- Twenty-four-hour service, 365 days a year is maintained.



E. G. Wolf, Jr.,
Supervisor Plant Engineering,
Hussmann Refrigerator Co., St. Louis, tells

"WHY WE CHOSE CENTURY LP-GAS CARBURETION"

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"...we were experimenting with two identical lift trucks, one on LP, the other on regular gasoline. We needed help on the proper type of LP conversion and how to maintain and operate the equipment for best results. The authorized Century Distributor delivered the goods with on-the-spot help."

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"...we soon learned that the extensive Century national distributor set-up for service and parts was to be of tremendous help. The local Century Distributor carries a complete stock of all parts necessary to keep us in continuous operation. And the quality of personnel proved to be a time saver too."

EDUCATION

"...the local Century distributor has complete facilities for educating our operators and other plant personnel on the care and operation of our LP vehicles. They have regular school-clinics with demonstrations and instructive literature."

APPROVED EQUIPMENT

"...once again Century scored with us. Not only does their exclusive full metering value carburetor provide easy starting and smooth idling but we found the equipment FACTORY MUTUAL APPROVED."

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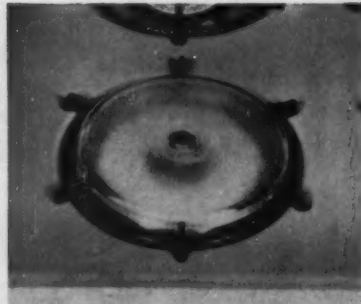
New Products and Free Literature



Portable outdoor grill has gas ignition

Circle 1 on Readers' Service Card

Controlled cooking heat and gas ignition is featured in this portable outdoor grill (GEC 240). A web of gas jets heats the charcoal-like material to broiling temperature in less than five minutes, producing the true "charcoal-broiled" flavor. Gaslight, Illinois, Inc.



Microglas top burner thermostatically controlled

Circle 3 on Readers' Service Card

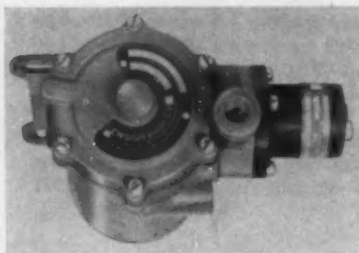
Emitting a 3-micron infra-red ray, this Microglas top burner (GEC 240), is thermostatically controlled with input of the burner at approximately 8000 Btu. Cooking through a glass cover or plate protects the burner from spill overs. Hardwick Stove Co.



Power reclaimed in all-hydraulic hoist system

Circle 5 on Readers' Service Card

The all-hydraulic hoist system featured in the new straddle truck carriers reclaims power formerly lost in the levers, links, sprockets and chains of mechanical lifting arrangements (GEC 485). One model of the carrier is equipped with a 153-hp., V-8 LP-Gas engine. Hyster Co.



L.P. gas carburetion system designed for small engines

Circle 2 on Readers' Service Card

Main components of this new Ensign system are the CVS vaporizer and CR carburetor-regulator (GEC 100). Designed for fork-lift trucks and other similar equipment powered by small engines, the system features electrical control, simplified installation, automatic chokeless starting and tamperproof design. American Bosch Arma.



Gas wall furnace is improved in performance

Circle 4 on Readers' Service Card

Improved performance is claimed for this new gas wall furnace (GEC 420). It features controlled radiation by means of a shield, providing radiation to the sides as well as in front of the unit, and contains a temperature control system. Heat is radiated over an area of 120 deg. providing a wider area of radiant heat. Temco, Inc.



Portable spot heater features safety guard

Circle 6 on Readers' Service Card

A safety guard is an integral feature of this portable spot heater (GEC 410), designed for use in hard-to-heat areas. Made of heavy gauge steel, the heater is rated at 80,000 Btu input per hour. It is available with manual positive variable turn-up and turn-down controls and automatic shut-off. Union Chill Mat Co.

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New two-way radio mounts under the dash

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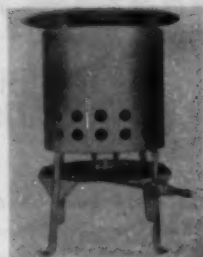
A 15-watt version of Transicom two-way radio (GEC 140) for use in the 144-174 mc band has been devised to mount under the dash. Special speaker built into the front panel directs the sound to the driver's ear. Allen B. Du Mont Laboratories.



Ultra-modern gas lamp shows improvements in performance

Circle 10 on Readers' Service Card

"Satellite" is a complete break-away from old-fashioned traditions of gas lamp design. Design features give increased brightness and efficiency (GEC 470). Exposed metal parts are non-corrosive aluminum. Humphrey Products.



L. P. gas salamander has automatic shut-off

Circle 13 on Readers' Service Card

This new series of salamanders gives high heat output—up to 150,000 Btu at 10 lbs operating pressure—with all the safety features of lower pressure models (GEC 410). Units have automatic safety shut-off. Weldit Inc.



Colored-coded click positions offered in gas range

Circle 8 on Readers' Service Card

This 1961 gas range, designed for safety and performance, features simmer flame, Uni-burners which have color-coded click positions and provide any degree of heat from low to a rapid boil flame. (GEC 240). Magic Chef.



Sealing Compound safe for any threaded unit

Circle 11 on Readers' Service Card

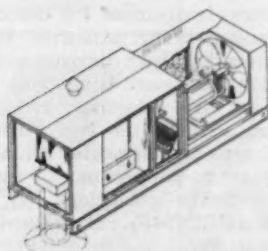
A corrosion-resistant sealing compound has been designed to accompany products for assembly of threaded fittings or gaskets (GEC 730). Sample and new literature can be obtained describing this sealing compound, which is recommended for highest of thread temperatures. Armite Laboratories.



Electronic air cleaner for residential field

Circle 14 on Readers' Service Card

This new electronic air cleaner is a compact, highly flexible two-stage unit with efficiencies ranging up to 90 per cent (GEC 350). It can be installed easily with any type of forced air heating or cooling system. Minneapolis-Honeywell Regulator Co.



Separate controls prevent cool drafts and hot areas

Circle 9 on Readers' Service Card

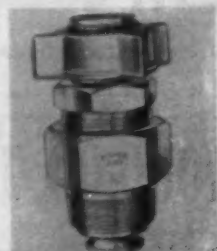
New roof-mounted heating and cooling unit is available in 5-ton, 7½-ton, and 10-ton sizes. It is operated by individual thermostats, thus eliminating cool drafts and hot areas (GEC 020). Vector Engineering Contractors, Inc.



Lower fuel costs with infra-red heating

Circle 12 on Readers' Service Card

L. P. gas energy is converted to infra-red heat energy on a catalytically active metal screen. Surface temperatures are controllable between 800 and 1500 degrees (GEC 410). Catalytic Combustion Corp.



Vapor equalizing valves provide maximum strength

Circle 15 on Readers' Service Card

Types E101 and E103 vapor-equalizing valves were designed for use in ASME storage containers, bulk plants and on delivery trucks. Both valves are brass forgings with heavy cross section. (GEC 820). Fisher Governor Co.

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(FROM THE UTH SHIRTSLEEVES SERIES*—VOL. 1)

Every businessman who offers a product or service to the public for sale is persistently plagued with several questions regarding the never-never land of *advertising*, and LP-gas distributor-dealers are no exception. They need specific, understandable answers to specific questions before committing the expense involved.

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This means, in advertising, to take a close look at *what* you say to the public, *how* you say it—and what media you use. Simply stated, selecting the "best" medium for each individual depends on (1) the aggressiveness and helpfulness of the medium itself; (2) on selecting a medium wherein the advertiser can afford to expose his message *consistently*, over a period of time; (3) recognizing what the medium can be expected to do—and what it can NOT be expected to do.

* (To aid its dealers and friends, Union Texas Natural has prepared a special booklet—"The Use of Local Advertising in the LP-Gas Business"—and a copy is yours free of charge or obligation. Write today, or ask your UTN sales representative.)



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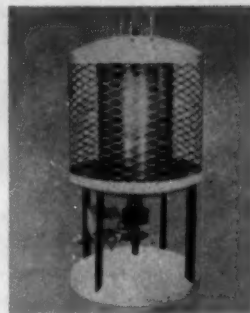
We'll give \$1,000 to any individual who first brings us acceptable proof that any other Degree-Day Recorder is more accurate, easier to install and simpler to maintain than the Hidy Degree-Day Recorder. Save up to 30% of trucking and bookkeeping costs. Leading firms report more gallons per delivery; fewer trucks do the same job, using the Hidy Degree-Day Recorder and Degree-Day System. Write for Bulletin F—Today!

HIDY-BROWN RECORDER CO. 6908 Five Mile Road Cincinnati 30, Ohio



(Note: Some territories still available for sales representatives. Write for details.)

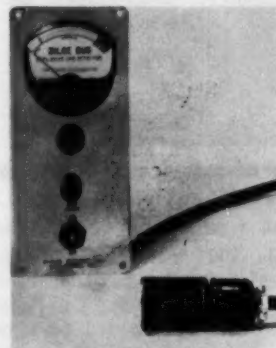
New products



Portable gas heater has extra-high capacity

Circle 16 on Readers' Service Card

Designed to produce large amounts of usable radiant heat for unheated indoor work areas or as supplemental heat for "hard to heat" areas, this 100,000-Btu portable heater is 36 in. high, 18 in. in diameter and weighs 50 lbs (GEC 410). Space-Ray Corp.



New device to detect explosive vapor mixtures

Circle 17 on Readers' Service Card

A new instrument for detection of dangerous or explosive vapor mixtures has been devised primarily for use aboard boats, may also be used in industrial locations. Within seconds, the two platinum wire sensing elements contained will react to the presence of vapors and indicate conditions on the meter (GEC 540). Engelhard Industries, Inc.

Chemical melts ice, snow 30 times faster than salt

Circle 18 on Readers' Service Card

Snow and ice are melted instantly with this new improved chemical (GEC 500). The white pellets out-melt salt with 30 times the thawing capacity at 0 deg. F. Revere Chemical.

SEE WHY THESE PUMPS CUT BULK TRANSFER COSTS !

SPECIAL DESIGN FOR HANDLING LP-GAS

Close tolerances give high efficiency.
Direct connection to standard electric motor —
saves speed reduction costs.
Longer life — no service attention needed.
Easy to pipe — have straight through flow.
Safest, most trouble-free mechanical seal.
Superior construction — top efficiency maintained longest.
Exchange pump plan — no time lost from service.
Pumps expertly repaired and tested.
Underwriters' or standard models available.



For delivery truck service
where flexibility is desirable.
20 GPM at 500 RPM or
35 GPM at 900 RPM
model TC-H



For average
truck service
55 GPM model TC-2
Flanges Available



For "high flow"
delivery truck service
100 GPM model TC-3
Flanges Available



For trucks with
automatic transmission
55 GPM model ATC-2
100 GPM model ATC-3

MORE FUEL DELIVERED FASTER AT LESS COST!

Flanges optional
at less cost than unions.

Our ads
never stretch the truth,
just your dollar



Murray 2-2293 and Murray 2-2691

PRECISION PRODUCTS COMPANY

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Southeastern Distributor: Pond-Johnston Inc. Warehouses in Mobile, Ala.; Jacksonville, Fla.;

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as fast as any larger pump.
100-lb. cys. in 4 minutes or less.
20-lb. cys. in 1 minute or less.
fork lift tanks no problem.
10 GPM models EC-1, EG-1,
MC-1, and GC-1.
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For small volume transfer work.
20 GPM model MC-1044
35 GPM model MC-1044H



For medium volume transfer.
50 GPM model MC-2
or MC-20 (higher pressures,
quiet running)



For large volume transfer
155 GPM model MC-3
Flanges Available



For high capacity loading
158 GPM model MC-4

New products

Gaseous hazards prevented by new device

Circle 19 on Readers' Service Card

Protection against hazards due to failure of gas flow to a process or heat-treating furnace is provided by the new Flo-Alarm. This device can be adapted to all meters ranging from 0-10 CFH through 0-30,000 CFH (GEC 190). The relay contacts, contained in the controls, handle 10 amps at 110 volts. Waukeet Engineering Co., Inc.

Midget detector monitors large combustion applications

Circle 20 on Readers' Service Card

Electronic detection of flame-out and immediate shut-down of combustion facilities is achieved with the new combustion programming control for medium-to-large installations of 300,000 Btu and up (GEC 190). The control features a midget ultraviolet detector tube which reacts instantaneously to presence or absence of flame. General Controls Co.



Make a PROFITABLE CONNECTION TO THE BIG COMMERCIAL AND INDUSTRIAL HEATING MARKET WITH PANELBLOC


Overhead gas-fired infra-red radiant Panelbloes make commercial and industrial heating practical and profitable. These heaters actually "Heat Like the Sun", and may be furnished to use LP gas as fuel. Installation is fast, and your own crews can do the job. No electrical connections are needed, since there are no fans, motors or blowers.

Panelbloc warms the floor, objects and people — not the surrounding air.

Panelbloc is entirely automatic in operation. Just set the thermostat for years of healthful, draft-free care-free heating.

Write for Bulletin
PC 1-60 W today

PANELBLOC DIVISION

 **THE BETTCHER
MANUFACTURING CORP.**

3106 West 61 St., Cleveland, Ohio

FREE LITERATURE

Water-heater sizing manual

Circle 21 on Readers' Service Card

A 61-page manual simplifying sizing procedures for commercial water-heaters is now available (GEC 860). Among the subjects covered are the AGA approvals, water temperature equivalents, etc. Republic-Transcon Industries, Inc.

Gas chromatograph brochure

Circle 22 on Readers' Service Card

GC-2A gas chromatograph is discussed in a 16-page brochure (GEC 670). A detection system of the thermal conductivity filament type is employed in the instrument. The system makes the instrument extremely valuable for trace analyses. Beckman Instruments, Inc.

"Easy to use" catalog

Circle 23 on Readers' Service Card

Valley Industries, Inc. has published a 68-page "easy to use" booklet covering cylinders, carburetion, pumps, hose assemblies, valves, regulator assemblies, reels and meters, brass fittings, copper tube, fire extinguishers, vaporizers, tool and service supplies (GEC 450).

Gas vent installation

Circle 24 on Readers' Service Card

This bulletin, second in a series dealing with venting problems, tells of the use of Type B double-wall metal vents in place of Type C single-wall pipe for vent connectors (GEC 840). Gas Vent Institute.

Transfer pump bulletin

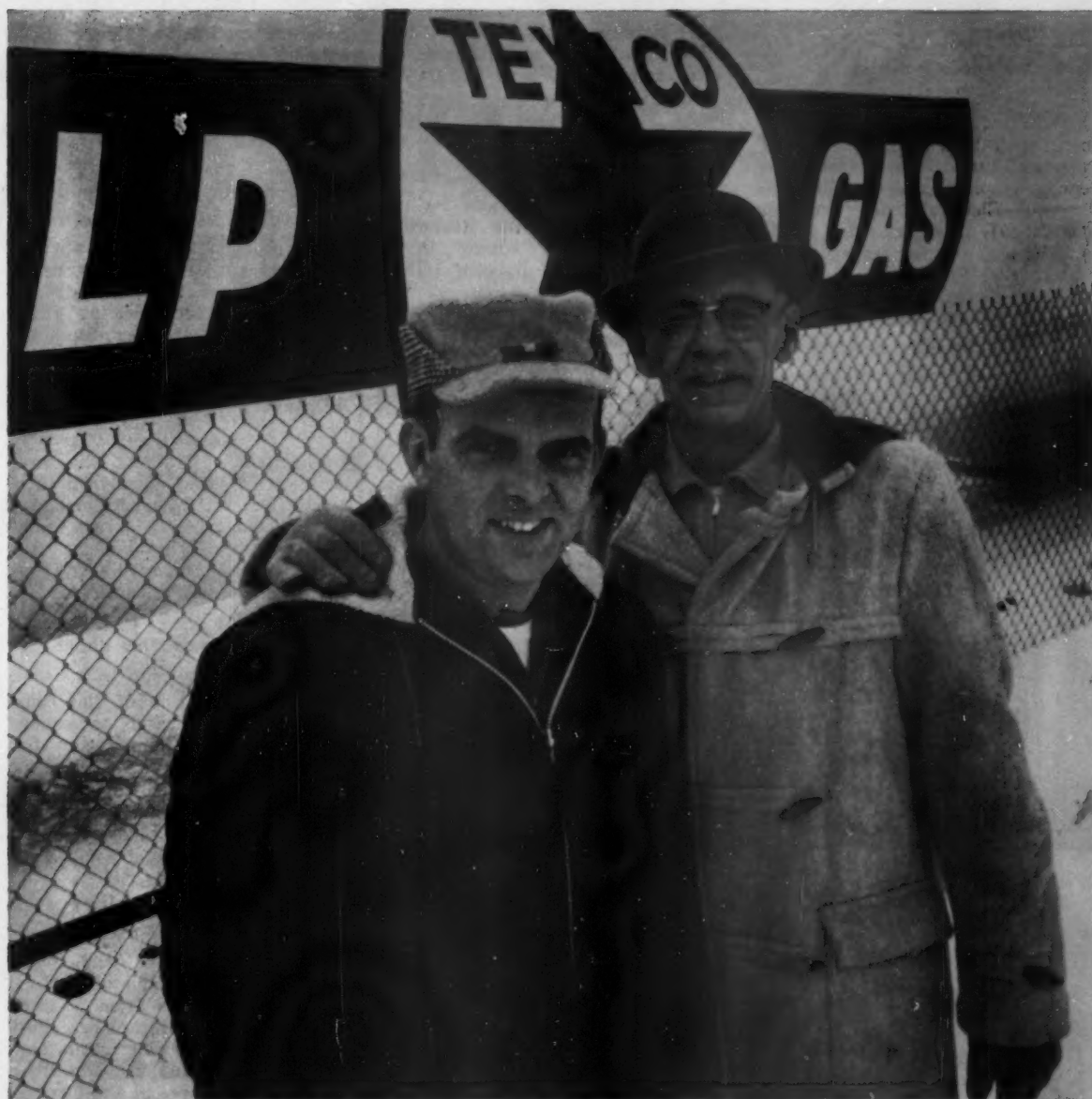
Circle 25 on Readers' Service Card

The simple, quick and economical operation of John Blue L. P. gas transfer pump and hose assemblies is described in this new bulletin (GEC 660). Proper operation and care give finer service over a long period of time. Farmers Tool and Equipment Co.

Boiler rating check list

Circle 26 on Readers' Service Card

A clean burner keeps your boiler clean, thus operating more efficiently (GEC 410). A complete check list to help you rate your boiler and obtain better operating performance is now available. Cleaver-Brooks Co.



WILLIAM H. BOWMAN, VICE-PRESIDENT, AND HIS FATHER, HAROLD, PRESIDENT, BOWMAN GAS & OIL CO., GULLIVER, MICH., TEXACO DISTRIBUTORS

"Our Texaco LP-Gas thru-put increased 100,000 gallons last year, for a total of 1-million gallons. We get dependable, on-time deliveries. Also, we like to do business with the Texaco people. They're jobber-minded—have worked with us all the way for 20 years. That's why we sell the best... Texaco."

Why you can grow with Texaco

1. You have a promising future with Texaco, because Texaco is jobber-

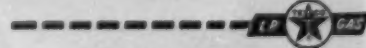
minded. Proof: 842 Consignees and Distributors have been with Texaco over 20 years, some over 45 years.
2. Profitable and proved sales policies. Texaco does not compete with its independent Distributors of LP-Gas.
3. Immediate acceptance. Texaco LP-Gas is sold under the nationally-known trademark, the famous Texaco red star with the green "T."
4. Dependable and efficient delivery in a new fleet of tank cars, from 31 strategically located production areas.
5. A product of highest quality — moisture-free.

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P. O. Box 2420, Philtower Bldg., Tulsa, Okla.; 3350 Wilshire Blvd., Los Angeles, Calif.; Texex, 237 Seventh Avenue, West, Calgary, Alberta, Canada.

I would like complete information about the possibility of becoming a Texaco LP-Gas Distributor.

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STREET _____
CITY _____
STATE _____



Free literature

Two-way radio bulletin

Circle 27 on Readers' Service Card

A line of two-way radio equipment with both transistor power supplies and vibrator-dynamotor power supplies are described in General Electric's new bulletin (GEC 140). Also described is the low battery drain transistorized line.

Control valves catalog

Circle 28 on Readers' Service Card

An 8-page catalog contains complete information on sliding gate

and plate control valves (GEC 820). The valves are available in sizes from 1/4 in. to 6 in. OPW-Jordan Corp.

Lubricated valves bulletin

Circle 29 on Readers' Service Card

Step-by-step instructions for lubricating and servicing Rockwell-Nordstrom valves appear in a three-color, 8-page bulletin (GEC 820).

Exhaust fumes literature

Circle 30 on Readers' Service Card

Oxy-Catalyst, Inc. describes the

different applications for reducing exhaust fumes in a new four-page booklet (GEC 790). It features problem-solution case histories of exhaust purifier installations on industrial vehicles.

Water heater selection guides

Circle 31 on Readers' Service Card

The problem of "how big a water heater to get" is solved by using the performance rating chart in the water heater selection guide available from American-Standard (GEC 860).

AZ governor data

Circle 32 on Readers' Service Card

The Reliance type AZ zero governor (GEC 700), described in a 4-page bulletin, is constructed for maximum sensitivity at extremely low pressures. This bulletin also lists the major operating and design features. American Meter Co.

Dishwasher sanitation chart

Circle 33 on Readers' Service Card

Accurate selection of the commercial water heater to supply enough sanitizing rinse water for each classification of dishwashing machines has been simplified by the use of an equipment selection chart (GEC 860). Ruud Manufacturing Co.

Welding torches described

Circle 34 on Readers' Service Card

The Oxweld W-45 and W-47 welding torches capable of welding any metal thickness from 28 gage sheet to heavy plate are described in a new 8-page booklet. This new booklet (GEC 870) also describes the unique features of the torches. Linde Co.

Booklet on hose

Circle 35 on Readers' Service Card

Industrial hose style selection is now charted in an easy-to-read, alphabetically arranged booklet, Bulletin No. 627. Listed are 112 separate liquids and gases (GEC 430). Aeroquip Corp.

Complete LPG catalog

Circle 36 on Readers' Service Card

A complete and up-to-date wholesale catalog of LPG parts and equipment has been published recently. The 72-page catalog is divided into eight divisions and will fill any L. P. gas requirement. Fine Products Co. (GEC 450.)



or Bulk Plant...

It's "GJ-BOSS" for Safety!

"GJ-BOSS" GROUND JOINT FEMALE COUPLING, STYLE X-34. Unequalled for strength, durability and safety on hose handling L-P Gas at bulk plants, on carloading rigs and other installations. All parts steel or malleable iron, thoroughly rustproofed. Furnished with super-strong "Boss" Offset and Interlocking Clamps. Ground-joint union between stem and spud forms washerless, leakproof seal. Sizes 1/4" to 6", inclusive. Also available in washer type, Style W-16 and companion "Boss" Male Coupling, Style MX-16. Stocked by Manufacturers and Distributors of Industrial Rubber Products.

DIXON Valve & Coupling Co.

GENERAL OFFICES & FACTORY PHILADELPHIA 22, PA. BRANCHES CHICAGO BIRMINGHAM LOS ANGELES HOUSTON DIXON VALVE & COUPLING CO. LTD. TORONTO

ASSOCIATE COMPANIES: RUBBER IRON COMPANY INC. QUAKERTOWN PA. STEEL IRON DRAWN STEEL COMPANY CARMON N.

NOW

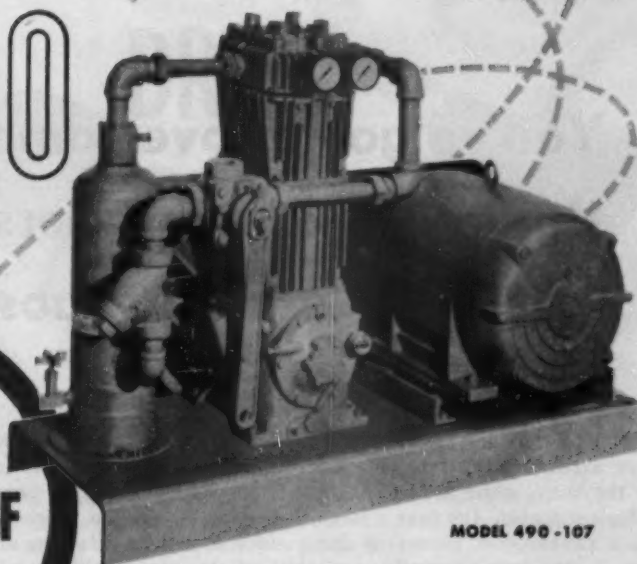
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Here's 9/11ths of the multilingual staff of Washam Gas Co., Taos, N. M.: Marcellino Suazo, Jack Hall, Harry Washam, Kathryn Washam, Tessie Gordon, Tony Perez, Jose Espinosa, Dail Bachtel, and Joe Valdez.

You've got to overcome three language barriers to sell "Awpani" in Taos!

BUILT BY THE SPANIARDS somewhere around 1615, Taos, N. M., was the third white settlement in the United States. It's near a large Indian pueblo now known as the Taos Pueblo, and when *that* was founded, not even the Indians themselves can guess! Today, Taos is a town of some 3500 Indians, Spanish-Americans and Anglo-Americans.

The town appears to consist of three groups which frequently do not see eye-to-eye. The business men want progress while the artists want the status quo. The Indians just continue to follow their traditional ways, and usually hold the balance of power. But on one point, there is no serious disagreement; "Awpani" (the Indian word for LPG) makes life a lot more comfortable for everyone. And, even the artists agree that it does so without distracting from the esthetic values of Taos!

Harry Washam, owner-manager of Washam Gas Co., has been selling L. P. gas and appliances in Taos since 1945 and has found it a profitable business. The company sells around 1 million gal. per year and does an excellent business in all kinds of gas appli-

ances, but particularly in space heaters. While he has competition, Washam and his competitors see eye-to-eye on price and service, and their relations are excellent. However, selling and installing gas appliances in Taos does have a few special problems.

One of the biggest is the language barrier. Washam must contend with Spanish and Indian, as well as occasional "Artist-ese!" He can get along well enough in

"Artist-ese," but speaks little or no Spanish or Indian. So, he naturally hired men who could speak these languages.

Of his crew of eight, two are Indian, and two are Spanish. Juan Cordova, a Taos Indian and Jose Espinosa, a Spanish-American, have been with Washam since he started. He taught them the business from the ground up. Both are so able and competent that he believes they'd be a credit to any LPG business.

Indians and Spanish-Americans have to be carefully instructed in the use and benefits of gas. In selling and instructing, Washam believes it's very important to have men who can tell the buyer—in his own language—just what he needs to know.

Many of the Indians use gas in their homes, but no gas whatever is used in the big communal pueblos. There, the old way must remain, say the tribe elders.

One of Washam's men, Marcellino Suazo, is a son of a member of the Taos Pueblo Council. Suazo explains that the elders prefer the methods of their forefathers, but admit that gas provides convenience, and comfort. The older Spanish-Americans take much the same attitude.

The younger people of both races, however, are forward-looking. While they value and respect the ways of their elders, they want the conveniences and comforts of today, including those provided by L. P. gas.



Most picturesque of the Taos LPG installations is this old mission church, built in 1772. The three LPG heaters actually detract much less from the homely beauty of the church than did the ancient pot-bellied stoves formerly used.

"Aiepani"

A fine example of younger generation Indians is Tony Reyna, a Taos and a good customer of Washam's. Reyna has an attractive home and store built of adobe in the traditional Spanish style. However, it's all-gas! LPG not only provides heating, cooking, hot water, and refrigeration, but also powers the electric light plant.

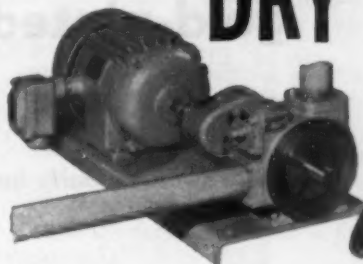
Panel ray heaters and wall heaters—especially for older houses—are a surprisingly good business. A substantial proportion of the buildings in and around Taos are built of adobe brick. Many of these adobe walls are full 2 ft thick. To install a wall heater in an adobe house, one merely takes a prospector's pick and chips a 4 or 5 in. recess in the wall.

A particularly interesting installation is the old adobe mission church at Ranchos de Taos, some 5 miles outside Taos. The church was built in 1772. Today, it remains—inside and out—almost exactly as it was when the Spanish fathers first built it. The only heat in the church came from big pot-bellied stoves, which were put in for the winter. They were never very satisfactory and detracted materially from the primitive beauty of the old mission.

Washam took the job of putting in modern heating. He installed three Humphrey multi-directional heaters, one at the rear, and one at each side, near the front. They are tucked away just under the ceiling about 20 ft up. One must look very closely to see them at all and they are almost impossible to photograph. Yet, they provide comfortable warmth for the worshippers. LPG is supplied from a 1000-gal. underground tank. The amount needed to heat the old building is surprisingly small, according to Washam.

In addition to these picturesque customers, Washam Gas has a good share of the commercial load available in Taos. This includes laundry, cleaning plants, motels, etc. There is virtually no industry but Washam is confident that when new business comes along, he'll sell his fair share of "Aiepani."

2000 HOURS BONE DRY



Blackmer Pump passes toughest test

When a customer asked us how well our pumps would wear, we had these facts to tell. In one of the toughest pumping tests ever devised, a 2-inch Blackmer pump was driven at top speed for 2000 hours, running absolutely bone dry. Vane wear was detectable only with a micrometer . . . proof positive Blackmer pumps can take it. And, even when vanes do show wear after years of use, they are easily and inexpensively replaced. Aren't these a couple of good reasons why you should use Blackmer pumps? Write for Bulletin 500.



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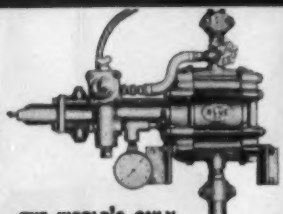
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Power is extracted from a small quantity of high pressure gas. Uses only 1/20th or 1/10th as much gas as the bleeding method. Vapor loss extremely low. Transfers up to 24 gallons per minute in the field without danger.

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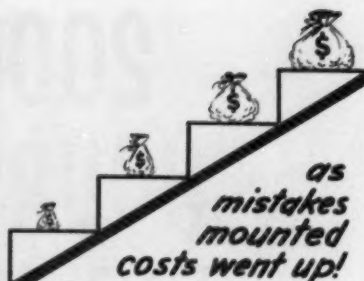


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EASY MAINTENANCE**

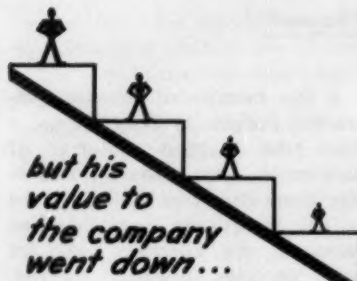


THE SPRAGUE METER CO.

35 SOUTH AVE. • BRIDGEPORT 1, CONN.



*as
mistakes
mounted
costs went up!*



*but his
value to
the company
went down...*

The case of the gold-plated serviceman

Sometimes he cost the company \$135 a week, and actually he was worth only \$23.40.

A BPN Exclusive

DO YOU HAVE ANY \$135-PER-WEEK servicemen on your payroll?

One dealer did—and he didn't even know it. He thought he was paying the man \$1.80 per hour, which adds up to \$79.20 for a 44-hour week.

But then he began digging into costs, and sure enough, he found the man was costing him anywhere from \$88.50 per week to \$135. Truly, here was a gold-plated serviceman!

But the man really wasn't a very good serviceman. Oh, there were worse, but this fellow was addicted to making mistakes. Some weeks he made one or two. Other weeks, when he was feeling just a bit off his feed, the mistakes mounted—sometimes up to five or six.

It was pretty irritating for his employer, and it wasn't doing the company's customer relations any good. People hate to have to call back a serviceman to correct an error. Even when he puts it right, they feel inconvenienced. They have a pretty good reason to grumble.

Besides that, the man didn't seem to be getting out his share of work. Too many callbacks.

All this inefficiency must be cost-

ing us money, the employer thought. Finally, one day, he got together with his bookkeeper and figured out just what it cost.

He started with the hourly wage—\$1.80. Now, how much time did an "average" callback take? This required some checking through work slips. He was rather surprised to learn that the average was three hours. If you're going to give prompt service, and you'd better if you're going to smooth a customer's ruffled feathers, you must make a special trip. Maybe the customer is 25 miles out in the country.

Yes, three hours was just about right. At \$1.80 per hour, the labor cost for the average callback ran \$5.40.

You must have transportation to get back and forth to the job. The serviceman's work slips showed the miles traveled, so the employer was able to compute the total transportation cost from a per-mile figure. This worked out to \$1.25.

Now there almost always were small, "giveaway" parts involved in the job. He totaled these up, divided them by the number of callbacks, and found they averaged \$1.35.

Gold-plated serviceman

Anything else? Oh, yes, overhead. In this dealer's operation, it runs to 24 per cent of the employee's wage. So he multiplied the \$5.40 by 24 per cent, and arrived at an overhead cost per callback of \$1.30.

He added them all together: labor, \$5.40; transportation, \$1.25; giveaway cost, \$1.35; and overhead, \$1.30. Total, \$9.30. That's the actual cost of a callback.

In his best weeks, when he made only one mistake, the employee was costing the company \$79.20, his base salary, plus \$9.30, or a total of \$88.50. From there, costs rose as follows:

2 mistakes	\$ 97.80
3 mistakes	107.10
4 mistakes	116.40
5 mistakes	125.70
6 mistakes	135.00

The employer blinked. For what two of such employees might cost, in a bad week, he could hire a third—full time.

He got to doodling with figures, and decided to calculate what the man was actually worth to the company. Any time he spent rectifying a mistake, he was worthless, so each mistake should be deducted from his gross worth, or weekly wage. Since one mistake cost \$9.30, each mistake would lessen his value by that amount. Thus, if he made just one, he was worth \$79.20 less \$9.30 or \$69.90. As he committed additional ones, his value depreciated accordingly, as follows:

2 mistakes	\$60.60
3 mistakes	51.30
4 mistakes	42.00
5 mistakes	32.70
6 mistakes	23.40

Three more mistakes and he would have been worth less than nothing!

The employer, shocked by this exercise in arithmetic, decided to take steps to rectify the situation. He set up a six-part service policy:

- First, he employed only the right kind of servicemen. This involved a great deal of care and attention in hiring, but it is already paying off.

- Second, he is making it possi-

ble for his men to acquire every bit of service information and training possible. He has doubled up on the scheduling of manufacturers' service schools. He has established a service training manager and given him facilities for schooling the men.

- Third, he has weeded out of his inventory those appliances that have proved to be troublemakers.

- Fourth, he has insisted upon high standards of service work. To police it, he has set up a "service survey" program. After every service job is completed, he sends a postpaid double postcard to the customer asking a half-dozen questions:

"Was your request for service courteously handled by our office personnel?"

"Was delivery made or service rendered when promised?"

"Was service satisfactory?"

"Was the serviceman neat in his appearance?"

"Was he courteous?"

"Was he careful not to soil walls, floors, etc.? Did he clean up any litter?"

The man in charge of the training program analyzes the cards and ferrets out any weak spots. Then he goes to work on them, either through personal attention or through his formal training program.

- Fifth, he has seen to it that the service department is properly equipped. A serviceman cannot be efficient without efficient tools.

- Sixth, he has begun to eliminate those employees who will not study, learn, or show an interest in their work, or are careless.

In the end, he expects to cut service costs by 70 per cent!

The story is true—only a few figures have been changed. It's still too early to tell whether the employer will achieve his 70 per cent cost reduction goal. But at any rate, what started out as a simple exercise in arithmetic has developed into a full-scale overhauling of the company's servicing policy.

It's an exercise that anyone can do. It might be just what you need to get yourself started on working out a cure for one of the big headaches in this business—service costs. ■



ALBERT P. SKOWBONEK—from production coordinator to manager of production of Superior Valve & Fittings Co., Pittsburgh.

ALTON W. BECK has been promoted from marketing vice president of Robertshaw-Fulton (Richmond, Va.) to vice president of western operations in Anaheim, Calif. Included in this group are Grayson Controls Division at Long Beach and Western Research Center, also at Anaheim. ARTHUR G. BAITZ, now director of engineering planning, will become director of marketing.



Alton W. Beck



A. G. Baitz

Robertshaw-Fulton

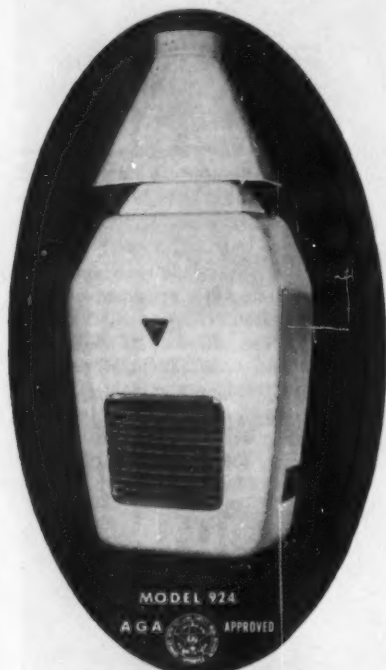
ELMER R. BRADLEY—from assistant general sales manager to general sales manager in charge of merchandising; MARCUS A. MARKLEY—from assistant general sales manager to general sales manager of liquefied petroleum gas; both of Sun Oil Co., Philadelphia.

EDWARD B. MAIRE—from general manager of Robertshaw-Fulton's Mairco Division at Goshen, Indiana, to general manager and assistant vice president of Robertshaw's Bridgeport Thermostat Division at Milford, Conn. Maire was formerly president of Mairco, Inc., which was acquired by Robertshaw in 1959, becoming the company's Mairco Division.

WILLIAM B. SHIMER, formerly with the Chrysler Corp., has been appointed director of manufacturing services for Borg-Warner Corp. in Chicago.

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**the boiler
that mounts on the wall
... out of the way**



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**ASCOT GAS BOILER
PUTS PROFIT BACK
in HOT WATER HEATING**

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Consider the space saving flexibility, low initial cost, one man installation, high efficiency and lack of maintenance.

Ascot is built and priced to bid even against budget warm air systems...and still build a profit for you!

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— one man can do the job.

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BASO & PENN Controls.

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London, Sydney, Montreal and Milwaukee

People

ROBERT E. WELLDORN, Anderson, Ind., has been elected to the board of directors of Reynolds Gas Regulator Co., Inc., of which he is now general plant manager.

W. L. "LEN" FARMER, regional manager of the RegO division of Bastian-Blessing Co., Chicago, will now add supervisory responsibilities over the Kentucky area. GEORGE A. WORKMAN will be district sales manager for Kentucky, Michigan, Indiana and western Ohio.

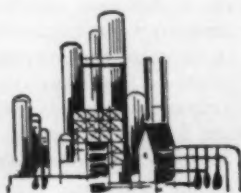


W. L. Farmer
Bastian-Blessing Co.

CHARLES E. HUGHES has been appointed steel valve division sales representative for Kerotest Manufacturing Co. of Pittsburgh. His territory covers West Virginia, Ohio, Kentucky, and parts of Pennsylvania and Illinois.

I. E. KILLIAN—from New England division manager of Esso Standard, Eastern Region of Humble Oil and Refining Co., to sales manager at New York headquarters. ADEN P. WILLIAMS, JR., reseller sales manager, succeeds Killian.

PIERCE V. BURKE has been named to the new position of sales manager for Timken Silent Automatic Products, division of Iron Fireman's Heating and Air Conditioning of Cleveland. Burke had served with Carrier Corp.



LARRY N. SUMMERS, formerly with Berry Seed Co., Clarinda, Iowa, has been named assistant comptroller of the Uregas Co. at Moberly, Mo.



L. N. Summers
Uregas Co.

ROBERT L. KIDD, former president of Cities Service Oil Co., has been elected chairman of the board. J. EDGAR HESTON, former president of Arkansas Fuel Oil Corp. in Shreveport, La., has been elected president of Cities Service.

ARLEN RESTAD—from district manager of Consumers GAService at Ortonville, Minn., to district manager in Detroit Lakes, Minn. JOHN HANSON—from Minneapolis traffic department to district manager of Consumers GAService in Ortonville.



John Hanson



Arlen Restad

Consumers GAService

LUTHER A. PRILLAMAN and JOHN R. NEWMAN have been named manufacturers' representatives of Modien Manufacturing Co., Racine, Wis. Prillaman will cover the Virginia area; Newman will cover the metropolitan Washington territory.

LEWIS E. BOWEN—from vice president & general manager to president of The Harris Companies of Arkansas, Little Rock. He succeeds LOUIS W. BULLOCK, who will remain on the board. These companies are made up of Butane Wholesale Gas Co., Harris Distributors, Inc., and the Harris-owned Zero Gas Co. of Arkansas.



ASSOCIATIONS

Advice from an ad executive: Let's have more sales-minded conventions

LESLIE S. HAUGER

RIGHT NOW many LPG men are planning programs for state, regional and national conventions to be held throughout the remainder of the year. Will these programs follow the same pattern as in the past? If they do there won't be many hours devoted to sales, advertising and sales promotion.

In looking over convention agenda for the past few years, especially on the state and regional level, I find very little if any time devoted to subjects on selling. Why?

Naturally it is important for the marketer to know how to keep records and how to make installations of L.P. gas equipment. A good collection system is a necessity, and credit know-how can keep a distributor from going broke. But all the records, engineers, collectors and credit managers aren't worth a dime unless someone is doing something about making the cash register ring.

It is true that the L.P. gas business has had no real sales problems until recently. For many years it was easy to get into the business. The marketer's big problem was getting enough product to supply the demand. Today things are different.

The electric utilities have wired everything from hen houses to factories. The natural gas companies are laying lines to towns that only dreamed of natural gas a few years ago. The post-war demand for appliances inspired every Tom, Dick and Harry to get into the appliance business. Today competition is a word well known among everyone connected with the L.P. gas business.

Mr. Hauger is vice president of Watts, Payne-Advertising, Inc., Tulsa, Okla., an agency which handles several major LPG accounts.

In spite of competition, LPG consumption grows so fast producers are having a hard time keeping up with demand. Last winter most storages were emptied, and even the boys who were crying about business the first of December were complaining about overwork from too much business when spring came along. Yes, it is a peculiar business.

Well, peculiar or not, it is an interesting and challenging one. But it must wake up sales-wise.

The majority of marketers are pretty smart operators. They have technical know-how, they keep up with innovations, and they provide outstanding service for their customers. But a great many are still trying to run a highly competitive business as if competition didn't exist.

The L.P. gas business is about where the natural gas business was 15 or 20 years ago. At that time families and industry were anxious to get natural gas. Gas utilities had no trouble getting customers. Even then they did use a few salesmen, and would run a few "institutional" ads in the newspaper, but that's about all.

The electric utilities made the gas men wake up. As new housing developments began to spring up featuring homes with electric appliances, the gas companies realized they had fallen down on their selling job. Today gas utilities and the AGA are doing outstanding promotional jobs to increase the sale of gas appliances, and—consequently—more gas.

Now is the time for the L. P. gas business to take a page from the gas utility book and start to step up creative selling and promotion at the consumer level.

Now back to LPG conventions.

In every area of the country there are L. P. gas men who are doing a wonderful job of advertising and selling. Why aren't these men

invited to participate in convention programs? Why can't every convention have an entire morning or afternoon devoted to nothing but sales, advertising, sales promotion and merchandising?

Here are a few ideas for such a session:

1. Panel consisting of successful advertisers in the LPG business discussing how to use newspapers, radio, television, outdoor and direct mail advertising.
2. Talk by outstanding salesmen of gas appliances explaining how to sell ranges, dryers, water heaters, etc.
3. Discussion by good heating equipment salesmen telling the best ways to sell heating equipment. (Air-conditioning, too.)
4. Success story by an engine conversion salesman who has made an outstanding record in the area.

Of course this could go on and on. A clever program chairman could arrange for special stunts such as a playlet showing how to, and how not to, sell gas appliances. How about having an exhibit of

for LEAKPROOF
PRESSURE-TITE
Connections...

TiteSeal
SEALING COMPOUNDS

Heat and vibration-proof, non-solvent, will not shrink, crack or crumble. Makes all assemblies leak-proof and pressure-tight. Prevents rust, corrosion and joint seizure.

7 BASIC BLENDS

LIQUID WRENCH
LOOSENS
RUSTED BOLTS

A powerful blend of fast-acting solvents that literally "melt the rust away"—safe on all metals and alloys.

RADIATOR SPECIALTY CO.
CHARLOTTE, N. C.



CLASSIFIED Advertising

All Classified Advertising payable with order. No agency commission or cash discount on classified advertising. Copy must reach publisher's office prior to the 1st of the month preceding publication. Address: Classified Advertising Materials, BUTANE-PROPANE News, 198 S. Alvarado Street, Los Angeles 57, Calif.

DISPLAY CLASSIFIED

\$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt. display type for headings. Set with 1 pt. border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15¢ a word. Set in 6 pt. type without border. \$6.00 minimum charge per insertion. If Blind Box number card of B-P News is used, count as five words.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

When full payment is made in advance for four consecutive insertions of undisplaced classified ads, a 10% discount is allowed.

SITUATIONS WANTED

SOUTHEASTERN SALES REPRESENTATIVE having broad gas, appliance and equipment experience in sales and management, 10 years retail, 3 years wholesale capital equipment, industrial combustion experience, seeking sales or management connection. Graduate marketing and law education, age 38, married, own Atlanta home. Reply Box 5, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

HELP WANTED

EXPERIENCED SALESMAN IN ALL PHASES of Propane gas business. Base salary, plus commission and transportation furnished. McMinnville Gas Co., McMinnville, Oregon. Phone 10593.

LP-GAS SALESMAN (Retail & Wholesale). Must have complete selling knowledge of LP-Gas Appliances and Carburetion. Permanent position for aggressive "Go-Getter." Solar-Gas Inc., 124 Fulton Street, Princeton, Wisconsin.

BUSINESS OPPORTUNITIES WANTED

WILL PURCHASE GOING LP GAS BUSINESS

Retail or Wholesale. Southeastern or Midwestern states preferred by responsible party. Send details to:

BOX 3, BUTANE-PROPANE News
198 So. Alvarado St., Los Angeles, Calif.

BUSINESS OPPORTUNITIES OFFERED

LP-GAS BULK PLANTS. WE SPECIALIZE in selling petroleum properties throughout Midwest. Have number desirable plants for sale. OLE BRODD, PETROLEUM MARKETERS, 605 Produce Bank Bldg., Minneapolis, Minnesota.

LP-GAS AND APPLIANCE BUSINESS for sale. 1961 sales in excess of \$400,000.00. Two twin tank bulk trucks, ten cylinder and service trucks, two radio transmitters and eight mobile radios, average condition. Balanced load in prosperous tobacco belt. Southeastern coastal area. Price \$75,000.00. Write Box 6, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

FOR SALE — TRUCKS - TRAILERS

USED PROPANE DELIVERY TRUCKS. 1200 to 2200 W. C. Presently in use and being replaced with larger units. United Petroleum Gas Co., 4826 Excelsior Blvd., Minneapolis 16, Minnesota.

USED TRANSPORT SALE—The following used propane transports are available on "First come—first served" basis—all exceptionally good buys:

7342 W G Single Barrel	250#	PSI—\$6750.
6592 W G Single Barrel	250#	PSI—\$6750.
6490 W G Twin Barrel	250#	PSI—\$3750.
5876 W G Twin Barrel	250#	PSI—\$3500.
5380 W G Twin Barrel	200#	PSI—\$3500.

Write, wire, phone Trinity Steel Company Inc., 4001 Irving Blvd., Dallas 7, Texas. Phone FL-7-3961.

FOR SALE—TRUCKS-TRAILERS—Cont.

END SOARING LPG DELIVERY COSTS!

Why lease when you can own for less? Think of it! You can have a modern, lightweight, 1800 WG twin, mounted on a 2-ton truck with high flow plumbing, hose, rear cabinet in one package, on easy Nor-Tex terms, for \$5,860.00. Buy now while they last for only \$586.00 down. Pay the balance in up to 36 easy Nor-Tex monthly payments. Write, wire or phone today!

NORTH TEXAS TANK CO.

Denton, Texas

382-5416

TRADE WITH A TRADER

30 DAY SPECIAL

1961 Chev. #C-6303, 2 speed, 825 x 20, 10 ply rear tires, HD springs, PIPED COMPLETE with 1800 gal. TWIN or SINGLE Propane Truck Tank . . . latest ASME Code . . . DeLuxe rear cabinet, Packaged Plumbing, Viking pump, Neptune Print Meter, 20 lb Fire ext., lights, filler & vapor hoses, remote controls to rear, white enamel, FED. TAX PAID . . . ONLY . . . \$6,366.00 Cash or \$636.00 Down and 36 payments of \$187.83 including interest. 2000 gal. \$372.00 more. WE TRADE. 4 Models in 1400 to 2600 gal. TWIN or SINGLE. GMC's . . . FORD's . . . INTERNATIONAL's at FLEET PRICES.

Call—PRESTON GRACE

WHITE RIVER DISTRIBUTORS

Ph. RI 3-2374—BATESVILLE, ARK.

Several GOOD Used Units Too.

FOR SALE—MISCELLANEOUS

DIXIE SEMI-LOCK HOODS, ALUMINUM and Aluminum coated steel. Wall bracket or free standing. GUARANTEED mechanically for life. \$3.00 per. Dixie Manufacturing Company, Elizabethtown, Kentucky, Box 65. Phone Collect RO3-5429.

SERVEL REFRIGERATORS

4 & 6 cu. ft.—U-type Evaporator
6-7.8 cu. ft. Cross-top Freezer
Used But Not Abused
Clean—Guaranteed—Low Cost Shipping

FRED A. BROWN COMPANY

170 W. Cumberland St., Phila. 33, Pa.
Est'd 1916 Call Collect RE 9-1130

FOR SALE—MISC.—Cont.

DECALS MADE FOR TRUCKS, EQUIPMENT. Small or large quantities. Catalog free. Mathews Co., 827 S. Harvey, Oak Park, Ill.

FOR SALE—ASSORTED QUANTITY OF 3/4" and 1/2" Brass Flare Fittings. Write Bahamas Gas and Fuel, P. O. Box 1553, Nassau, Bahamas.

FOR SALE — IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P.O. Box 396, Beloit, Wisconsin.

BAKER ALCOHOL PUMPS, the answer to your Moisture Problem. Injects alcohol into propane cylinders. Saves changing regulators moving tanks. Pays for itself in a jiffy. Send \$59.95 for pump complete with fittings. Baker Engineering, Malone, New York.

SERVEL GAS REFRIGERATORS

With cross top freezers—late model, blue glass freezer door. Used, excellent condition, guaranteed in good operating order.

Low delivery cost. Special price for half or full trailer loads. Other models in stock. Send for photos and details.

BEACH REFRIGERATOR CO.

196-11 Northern Blvd. Flushing 58, N. Y.
Phone: Flushing 7-6161

WANTED—MISCELLANEOUS

WANTED TO BUY: USED 100 to 1000 gallon propane bulk tanks in or near Central Indiana area. State number of tanks, age and price. Write—Westfield Gas Company, Westfield, Indiana.

WANTED TO BUY: LATE MODEL 2" Neptune Print Meter without Compensators. North Texas Tank Co., P. O. Box 1219, Denton, Texas.

PROFESSIONAL SERVICES

PROPANE GAS PLANTS

ANHYDROUS AMMONIA PLANTS

Designed and Installed

PEACOCK CORPORATION

Box 288, Westfield, N. J.

CLASSIFIED

PROFESSIONAL SERV.—Cont.

INCREASE YOUR PROFITS BY APPLYING my accounting and Financial controls that show proper Ratios for your operations. Evaluations, Equipment revisions, and accident suit assistance also supplied. **Floyd F. Campbell, Management Consultant, 821 Crofton Ave., Webster Groves 19, Mo.**

APCO Standby - Peak Shaving
Mixers and Plants
Safe - Simple - Automatic
Design - Engineering - Construction
APPLIED ENGINEERING COMPANY
Orangeburg, S. C.

L. P. GAS INSURANCE

Have your agent write us about our Complete and Comprehensive Coverage for Adequate Limits of Liability at Reasonable and Normal Rates with Specialized Safety Engineering and Claim Service. Available only in Alabama, Arkansas, Arizona, Florida, Georgia, Kansas, Louisiana, Mississippi, New Mexico, Oklahoma, Tennessee and Texas.

PAN AMERICAN FIRE & CASUALTY COMPANY
Earl W. Gammage, President
P. O. Box 1642 Houston, Texas

BUSINESS RECORDS

BUSINESS RECORD FORMS. ALL-WEATHER EZE-SNAP delivery invoices, for use when making L.P. gas metered truck deliveries. 100 sets (3 part) imprinted with name, address and telephone. \$18.00 per 1000 sets. Advise make of meter. **DEGREE DAY SYSTEMS, Dept. BP WOODSIDE 77, L. I., N. Y.**

SERVING 20,000 PETROLEUM COMPANIES over 30 years with petroleum price cards, customer reminder Eze-Stik labels, telephone call-service order—L/P metered delivery invoices, Eze-Snap Service Form, Duraluminum ticket holders, Sort-O-Matic Rack, etc. Write us for details, no obligation. **DEGREE DAY SYSTEMS, Dept. BP., WOODSIDE 77, NEW YORK.**

The KNOW-HOW BOOK for LPG

• DEALERS • SALESMEN • SERVICEMEN

The Bottled Gas Manual has been accepted by many companies as the quickest way to acquaint new sales and service men with typical bottle gas problems. This 352 page (24 chapter) text book brings practical "working" facts to your entire staff in non-technical language. Nearly 10,000 copies in use.

\$4.00 per copy

We pay postage on orders accompanied by check or money order. In California add 4% for sales tax.

Butane-Propane News

198 S. Alvarado Street, Los Angeles

Associations

retail advertising, with an advertising man to point out good and bad points? Delegates might bring samples of successful promotions, with awards being given for the best promotions of the year.

After watching a stimulating sales promotion program, delegates would go home inspired to do a better job of selling. Such a program would put some positive thinking into their minds, and not leave them worrying about the many problems of the industry which are usually discussed at so many conventions.

The talent for a sales program is readily available if the program chairman will search it out. Every state has outstanding L.P. gas companies who would furnish speakers. The larger natural gas companies can furnish sales managers, advertising men, and home service girls who would be happy to take a spot on a program. If money is available, national sales experts could be brought to the convention city as featured luncheon or dinner speakers.

The important thing is for LPG conventions to make selling an important part of the program. One thing is certain: "the dealers," as expressed at the BPN Sales Roundtable (May, 1960), "... must realize more than ever before that a sales effort is needed to make the 'sixties' really 'golden.' "

Arkansas LPGA secretary resigns position

Ed Dozier, former executive secretary of the Arkansas LP-gas Assn., and long active in the liquefied gas field, has been named advertising director for the Arkansas Recorder. The Recorder, a weekly publication owned mainly by Gov. Orval E. Faubus, is Arkansas' only weekly governmental periodical. Dozier's office in Little Rock will handle practically all the advertising.

Northeast LPGA convention to be held in February

The 7th annual Northeast LPGA convention is being held February 6, 7, and 8, at the Sheraton Park in Washington, D. C. The main speakers will be S. F. Wikstrom, director of American Gas Assn.'s \$8 million PAR plan; Alfred P. Dodge, executive vice president at Goldberg - Tiller Corp., leading wholesale appliance dealer in Rich-

mond, Va.; R. J. Munzer, president of LPGA; and L. A. Brand, vice president of Empire Stove Co., at Belleville, Ill.

A trade show will be held in conjunction with the meeting. A banquet and entertainment will conclude the convention's program.

Maytag Co. head elected to American Home Laundry

Claire G. Ely, vice president of marketing, The Maytag Co., has been elected board chairman of the American Home Laundry Manufacturers' Assn. for 1961. Fred H. Holt, General Electric Co., was elected vice chairman of the board, and Mason Smith, Whirlpool Corp., was elected treasurer. The association is composed of 20 manufacturers who account for nearly 100 per cent of the U. S. production of home laundry appliances.

Eleven manufacturers join GAMA; total now 576

Gas Appliance Manufacturers Assn. has elected 11 companies to membership, bringing the total enrollment to 576 firms. These firms collectively produce 95 per cent of all household commercial and industrial gas equipment made in U. S. today.

The new members are: Capitol Mfg. Co. of Columbus, Ohio; Driam Corp. of Manitowoc, Wis.; Ducane Heating Corp. of Totowa, N. J.; Glo-Fire, Inc. of Elsinore, Calif.; Joslyn Mfg. & Supply Co. of Chicago; La Mere Industries, Inc. of Walworth, Wis.; Meynell Mfg. Co. of Erie, Pa.; Mt. Hawley Mfg. Co. of Peoria, Ill.; Ronan & Kunz, Inc. of Marshall, Mich.; Vector Engineering Contractors, Inc. of Dallas, Tex.; and E. H. Wachs Co. of Chicago.

LPGA convention to hear Frank Porter, API head

In what may well be one more step toward getting full recognition of the L. P. gas segment of the petroleum industry by the producers, Mr. Frank Porter, API head, will address the next LPGA national convention.

Porter, perennial president of the American Petroleum Institute, will be a featured speaker at the session on May 1 in Chicago, LPGA has announced.



CALENDAR

All associations
are invited to send
in the dates of their
forthcoming meetings

February 2-3—LPGA Board of Directors meeting—Mark Hopkins Hotel, San Francisco, Calif.

February 6-8—Northeast LPGA Convention and Trade Show—Sheraton Park Hotel, Washington, D. C.

February 13-14—Mid-Pacific Gas Merchandising Conference—Hawaiian Village Hotel, Honolulu, Hawaii.

February 13-16—American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. Semi Annual Meeting and Exposition—Chicago, Ill.

February 22-24—Eastern Canada LPGA Trade Show and Convention—Queen Elizabeth Hotel, Montreal, Quebec.

February 22-24—The Material Handling Institute Pacific Coast Show, Sixth Annual Materials Handling and Packaging Conference—Cow Palace, San Francisco, Cal.

February 24—NGAA South Louisiana Regional Meeting—Lafayette Petroleum Club, Lafayette, La.

February 25—West Virginia LPGA Meeting—Mont Chateau, Morgantown, W. Va.

February 26-March 1—Petrochemical and Refining Exposition—Municipal Auditorium, New Orleans, La.

March 5-7—Indiana LPGA Trade Show and Convention—Claypool Hotel, Indianapolis, Ind.

March 7-9—LPGA Technical & Standards Committee Meetings—Royal Orleans Hotel, New Orleans, La.

March 15-17—NGAA 40th Annual Convention—The Baker and Adolphus Hotels, Dallas, Texas.

March 20-22—LPGA Southeastern District Convention and Trade Exhibit—Biltmore Hotel, Atlanta, Ga.

April 13-15—Gas Appliance Manufacturers Association Annual Meeting—Boca Raton Hotel, Boca Raton, Fla.

April 13-15—Western Liquid Gas Association Convention and Trade Show—Hotel El Dorado, Sacramento, Cal.

April 16-17—Kansas LPGA Convention—Allis Hotel, Wichita, Kan.

April 16-18—American Home Laundry Appliance Manufacturer's Association Convention—Boca Raton Hotel and Club, Boca Raton, Fla.

April 16-18—Ohio LPGA Annual Convention and Trade Show—Sheraton Gibson Hotel, Cincinnati, Ohio.

April 17-18—South Dakota LPGA Convention and Trade Show—Sheraton-Cataract Hotel, Sioux Falls, So. Dak.

April 23-25—Mississippi L. P. Gas Dealers Association Annual Convention—Edgewater Gulf Hotel, Edgewater Park, Miss.

April 28—NGAA Oklahoma Regional Meeting—Lake Murray Lodge, Ardmore, Okla.

April 30-May 3—National LPGA Convention and Trade Show—Conrad Hilton Hotel, Chicago, Ill.

ADVERTISERS

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PRESSURE OR NON- PRESSURE

LUBBOCK TRANSPORTS MEAN TOP PAYLOADS

Although construction is different, the problem of payload is basic to pressure transport tanks for hauling LP Gas, and transport tanks for gasoline and other petroleum products. Lubbock engineering and experience provides you with the right answer. For example, the T-1 steel propane semi-trailer shown has an 11,000 water gallon capacity, made possible by Lubbock engineering and design.



Shown at left is the Lubbock "Streamliner," an aluminum transport with four compartments. Mounted on a tractor weighing 13,500 lbs. the "Streamliner" will roll with a payload in excess of 50,000 lbs. in states permitting 72,000 lbs. gross loading.

Low Mileage Cost

LUBBOCK

WFO. ST.
LUBBOCK MACH. & SUPPLY CO. - LUBBOCK, TEX.

MACHINE & SUPPLY CO., Inc.

P. O. DRAWER 1589 PO 2-5261 LUBBOCK, TEXAS



TWO GREAT NAMES!

In the past twenty years, the name of Anchor has become well known for the personnel it's developed to take care of your needs. And now, as a further step in that development, Anchor teams up with the

Mobil Oil Company to insure the continuity of the high quality of its service. In the years to come, you can continue to depend on the Anchor Petroleum Division of the Mobil Oil Company, located at Tulsa, Oklahoma, for the same fine business policies and personal attention that mean service at its best.



MOBIL OIL COMPANY

A Division of Socony Mobil Oil Company, Inc.

